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The Veterinary Record

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VOL. 70 NO. 1 ISSUE NO. 4161 1-24 JANUARY 4th 1958

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VETERINARY RECORD

Founded by William Hunting, F.R.C.V.S., in 1888

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The President's New Year Message

THE beginning of a new year is a time both for looking back and for looking forward, and so far as our Association is concerned I am happy to feel that we can look back upon a year of continued advance both in our general affairs and in our numbers. Reflection upon such progress will not, however, lead us into complacency, and our aim must always be to aspire towards even higher prestige for our profession, greater and more rapid advance in our knowledge, and the continued promotion of the interests of individual veterinary surgeons.

Our science, in common with all others, does not and cannot stand still. It is not necessary for me, as your President, to dwell upon the vital importance of our country's livestock, and on the contribution we can make to the health of that stock both by preventive and by clinical medicine. Nor must we forget the important part we should play in the field of public health and in advances in animal husbandry, to neither of which we have yet been admitted as fully as we could hope and expect. Nevertheless, I feel certain that there is a steady increase in public awareness of the value of the work we do and of our professional ability to carry it out. Such public awareness is of very great importance, and one message I should like to send to every individual member is to reflect upon the extent to which he or she can add to our profession's standing, and then to determine to enhance it by every means.

Nor must we have thought for our own profession and our own science alone. Workers in kindred fields require our collaboration and indeed invite it in increasing numbers. We must play our full part in grasping the friendly hands extended towards us. I could wish that Government and other official bodies were equally ready to approach us, and it is a matter of regret to our Association that veterinary representation on various agricultural, scientific, and other commissions and committees, is at times sparse or even non-existent.

Not long ago, members of the Association received the published proceedings of the 1957 Congress held at Cambridge In a number of ways that Congress broke new ground, notably in the scope of its scientific exhibition, the provision of plenary papers by authors of the highest eminence, and the unusually large number and variety of the sectional papers. While it is true that the city and University of Cambridge were able to provide for us specialised facilities not available in many other places, we should none the less do our utmost at succeeding Congresses to maintain the advances made and thus ensure that our annual Congress brings ever-increasing prestige to the art and science of veterinary surgery.

As I am writing in our official journal I should like to refer to the new cover which has added to the dignity of the journal's appearance and has, I believe, met with general approval. I think it is fair to say that THE VETERINARY RECORD is generally much improved, and it is interesting to realise that every week more than 1,500 copies are sold to interested persons outside the membership of our Association. Clinical work is increasingly well represented, though it must be borne in mind that the Editor has to depend upon clinicians to provide suitable articles. It will be remembered that at the 1957 Congress the William Hunting Awards for the best published clinical papers were made for the first time, and this innovation has been very well received. The first winners set so admirable a standard that future recipients will feel themselves honoured to receive William Hunting Medals.

During 1957 it has again been a great source of satisfaction to your President and to the other Officers that our relationship with the Royal College of Veterinary Surgeons has remained on such close and cordial terms. This happy association should be a

model; and while increasing specialisation within our ranks remains a mark of scientific and other progress, nothing should be allowed to diminish our absolute professional unity. It remains imperative that we speak with one voice—and the multiplicity of branches must serve only to give new and greater strength to the trunk, as it were, of that professional tree wherein our devotion lies.

With these thoughts in mind, may I wish to every member of the profession a very happy and prosperous New Year.

J. McC. INGRAM.

"Refresher" Articles

FOR a considerable time past, the Editorial Committee has endeavoured, in a number of ways, to make THE VETERINARY RECORD more interesting, and of more service, to veterinary surgeons in practice. In his New Year message the President graciously refers to the progress made along these lines, and during 1958 a fresh project is to be embarked upon. This will take the form of "refresher" articles, one to be published each month. The first, on swine fever, written at the Committee's invitation by Dr. A. J. Wilsdon, is published this week.

Among the subjects chosen for the "refreshers" are "Advances in Anaesthesia in the Last Ten Years," "Anaesthetic Emergencies Likely to be Encountered in all Species," "Bovine Piroplasmosis," "Blood Transfusions in Veterinary Practice," "Metabolic Diseases," "Present Knowledge of Johne's Disease," and "Coccidiosis in Mammalian Animals." Other subjects are under consideration.

Of notable interest in the series will be a set of articles, published as a single whole, somewhat in the manner of a symposium, reviewing the mastitis problem. These will be received, a little later on, from the Technical Development Committee.

We should be glad to have the reaction of our readers, in due course, to this new series. Should they prove sufficiently interesting to veterinary surgeons in practice the Editorial Committee will discuss the possibility of reprinting the articles, annually, in booklet form. Those who would care to make suggestions for future subjects are invited to write to us, and their ideas will be laid before the Committee.

In offering the new feature to clinicians, especially, we should like once again to draw their attention to our journal's constant need for those practical papers which clinicians alone can supply. We are fully aware of the exigencies of practice in these days. It is accepted as being no small undertaking to sit down and produce a carefully documented paper of high standard. Nevertheless, it is to the field worker we must continue to look if the quantity and quality of clinical papers received by this journal are not to fall away.

Reverting to Dr. Wilsdon's paper, it will be noted that he draws attention to the responsibility and importance of the work of L.V.I.s in dealing with swine fever. So high a value does the author place on their services that he has, intentionally, repeated advice which may be familiar, but which bears repetition by reason of its urgency if this singularly obstinate condition is to be first contained and later eliminated.

In launching this series of "refresher" articles we should like to acknowledge, most gratefully, the work of those authors who have written, or are writing, the papers. Adequately to review, in practical terms, a wide field, calls for practical knowledge and familiarity with the literature of no mean order; while the actual writing and revision of a substantial paper make great demands on a worker's energy and time. We feel sure that readers of THE VETERINARY RECORD will well understand these facts, and will be appreciative accordingly.

THE 15th INTERNATIONAL DAIRY CONGRESS

Preliminary details of this Congress, which takes place in London in 1959, have been released. The Queen has consented to be Patron, and the Duke of Edinburgh has accepted the Presidency. The Chairman of the Congress management committee will be Sir Thomas Peacock.

The dates are Monday, June 29th, to Friday, July 3rd, inclusive, and a provisional programme is expected to be published next mid-summer, and all the papers and other communications will be published subsequently, together with summaries in the three official languages, English, French, and German.

Readers may recall that the B.V.A. has made a donation towards the cost of organising this Congress, which will be of the greatest interest to members of the profession.

W.H.O. MEETING IN WARSAW

The first international meeting organised by W.H.O. in Poland closed on December 4th in Warsaw after 10 days of discussions and demonstrations on the relationship between animal and human health, and on the best means of using veterinary medicine for promoting public health. It was attended by physicians and veterinarians from 23 countries in the European region of W.H.O.

The meetings were divided into two sections: the first was concerned with administration, professional education, and food hygiene; the second with recent advances in the fight against a number of animal-man diseases prominent in Europe. Throughout the discussions, the need for close collaboration between the veterinary and medical professions was stressed.

"Refresher" Article No. 1

Swine Fever

BY

A. J. WILSDON

Animal Health Division, Ministry of Agriculture, Fisheries and Food, Cambridge

SUMMARY.—This article has reviewed the swine fever position in Great Britain with reference to the incidence of the disease since 1938. *A description has been made of the symptoms, the principal causes of spread and the lesions together with information as to diagnosis of the disease. The possible value of the gel-diffusion precipitin test in assisting diagnosis is mentioned. Observations have been made on procedure, the completion of reports, and advice on dealing with outbreaks. The control of the disease has been discussed in detail, especially the statutory procedure. The use of vaccines has been examined with particular reference to the use of crystal violet and lapinised vaccines. It has been suggested that a modified policy of slaughter might be tried in conjunction with vaccination and restrictions on the movement of pigs.*

THIS article on swine fever has been written at the wish of the Editorial Committee of THE VETERINARY RECORD, who requested, since the article was primarily designed for the purpose of assisting clinicians the contents should be on broadly practical lines. Presumably, the reason why the subject of swine fever was included amongst the list of "refresher" articles is because of the important part the practitioner still plays in the control and investigation of suspected outbreaks of this disease. As will be indicated, the disease still remains one of the most difficult problems to be successfully tackled by veterinarians in this country, and indeed in many other countries throughout the world. Moreover, no other disease has given rise to more individual opinions amongst practising veterinary surgeons than swine fever. Consequently, considerable delay has often arisen in reporting and dealing with suspected outbreaks. Therefore, it is hoped to lay emphasis on certain accepted knowledge of the disease likely to be of value to the practitioner and in no way to attempt to review the vast mass of literature written on the subject.

History of the Disease

Claxton (1954) has reviewed the history of the disease in this country and the various policies which have been adopted to deal with it since it was first recognised in Ohio, United States of America, in 1833. It was declared a notifiable disease in Great Britain in 1879 and was dealt with by local authorities under the Contagious Diseases (Animals) Act, of 1878. Owing to the failure to reduce the incidence of disease, the Government was asked in 1893 to take over the control, which was done by the Diseases of Animals Act 1894. Since that time the administration can be divided into two parts. From 1894 to 1915 the slaughter policy together with infected area restrictions was tried, but abandoned after the report of the Departmental Committee in 1915. The slaughter policy was superseded by one of isolating every infected herd until further clinical evidence of the disease ceased and the pigs were considered no longer infective. The only pigs now slaughtered by the Ministry on any infected premises are those which it is necessary to kill for diagnostic purposes. In 1915 the Committee recommended the use of protective serum at the earliest possible stage. This advice is still contained in the advisory leaflet of the Ministry. Veterinary officers dealing with suspected outbreaks of the disease must give this leaflet to herd owners.

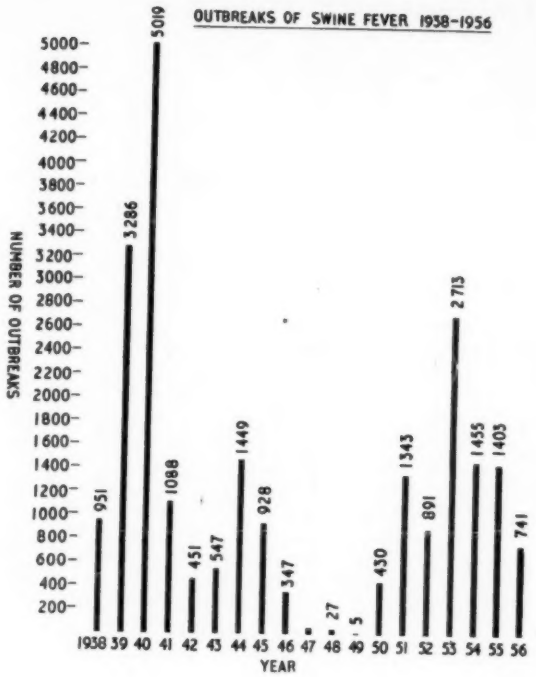
Incidence of the Disease

The swine fever outbreaks in Great Britain since 1894 to the present date are set out in Table I. It was felt, however, that it would be better to concentrate on a detailed examination of the disease since 1938—the year in which the Animal Health Division was set up in its present form (Diagram I). Prior to that date, the whole-time staff of the Ministry were relatively few in number and the present close supervision of the disease did not then exist. An analysis, therefore, of the outbreaks of swine fever in Great Britain confirmed during the years 1938–56 inclusive, is set in Table II. Amongst the figures shown in this Table are details of the pigs on the premises when the disease was first reported, the numbers that died from swine fever and from causes other than swine fever, and the number of pigs moved off under licence, together with the survivors on the premises when restrictions were withdrawn. Tables I and II clearly show the downward trend of the disease from 1945–49. The report on Animal Health Services for the year 1948 stated that the low incidence of the disease followed and was most probably a result of the reduced importation into Great Britain of raw pig products from countries where swine fever is endemic. In the report of the year 1949 this view was endorsed, it was pointed out that the 5 cases recorded occurred in the first month of the year. In addition the pig population was much reduced and movements through markets were small.

The fact that practically 50 per cent. of all pigs on infected premises are licensed off for food must force one to the conclusion that many outbreaks subsequently occurred from the inclusion of salvaged carcases in the meat supply ; apparently healthy pigs

TABLE I
SWINE FEVER OUTBREAKS IN GREAT BRITAIN, 1894–1956

Year	Number of outbreaks	Year	Number of outbreaks
1894	5,682	1926	1,200
1895	6,305	1927	1,794
1896	5,166	1928	1,472
1897	2,155	1929	2,981
1898	2,514	1930	2,408
1899	2,322	1931	2,026
1900	1,940	1932	1,555
1901	3,140	1933	1,414
1902	1,688	1934	1,833
1903	1,478	1935	2,049
1904	1,196	1936	1,873
1905	817	1937	982
1906	1,280	1938	951
1907	2,336	1939	3,286
1908	2,067	1940	5,019
1909	1,650	1941	1,088
1910	1,598	1942	451
1911	2,466	1943	547
1912	2,920	1944	1,449
1913	2,573	1945	928
1914	4,356	1946	347
1915	3,994	1947	37
1916	4,331	1948	27
1917	2,104	1949	5
1918	1,407	1950	430
1919	2,305	1951	1,343
1920	1,816	1952	891
1921	1,285	1953	2,713
1922	1,390	1954	1,455
1923	1,968	1955	1,403
1924	1,441	1956	741
1925	1,643		



may be in the incubative stage of the disease. Moreover, many pigs licensed off are only fit to be used for pork.

Doyle (1933) showed that the virus of swine fever survived for 73 days (not the end point) in the bone marrow of "salted" and "chilled" carcases. The virus also survived 17 days in the skin and muscle of pigs killed before the appearance of clinical symptoms. There was also some evidence that virus was still present in salted muscle after 73 days. The virus survived 42 days in salted skin and muscle of pigs killed after the appearance of clinical symptoms and for 37 days (not the end point) in bone marrow and muscle, and for 19 days in skin of smoked carcases.

Edgar, Hart & Hayston (1949) showed that in frozen pork (refrigeration at 12° F.) the virus was still active and capable of infecting pigs after 1,598 days and in bacon for 27 days. Swill feeding is therefore a source of recurring outbreaks of the disease.

Symptoms of the Disease

Swine fever is a highly contagious disease which fortunately affects pigs only. Although it was first recognised in 1833, it was not until 1892 that the causal agent was recognised as a filterable virus; this finding was published in the Bureau of Animal Industry, U.S.A., Circular in 1903.

The high infectivity of the swine fever virus cannot be too strongly emphasised. The incubation period of the disease varies from 3 to 35 days, or even longer. At the onset of the disease there is a rise in temperature and also a loss of appetite. It might not be out of place to mention for the benefit of veterinary surgeons that Doyle (1957) states there is no easier method of spreading the disease than by the use of the clinical thermometer.

In a matter of a few hours there is a loss of condition. Prior to the extensive use of crystal violet vaccine in this country it was usual to find a rapid spread of the disease amongst all the pigs. The fact that many pigs are now immunised often misleads the veterinary surgeon in his suspicion as well as complicating the diagnosis. Pigs of all ages are susceptible and commonly the first pig affected is the one which has been exposed to infection elsewhere, *i.e.* before purchase, while at service on other premises, or at markets and shows. Illness in any pig which has had outside contact in the previous 28–35 days should always give rise to suspicion.

Swine fever has been classified into an acute and chronic form but most outbreaks should be suspected in the acute stage. As the disease advances the pigs remain huddled together in the corner of their pen and bury themselves under their bedding. When stirred they are reluctant to move, standing with tails uncurled, backs arched and ears and head in a dejected manner. Figs. 1 and 2 clearly show them in this position, their hind legs crossed as if in weakness and being in a high fever, they will suck water and urine without apparent desire for food. The skin frequently shows evidence of the true lesions of swine fever, petechial haemorrhages of the skin and subcutaneous tissues appear as a reddish or purple colour at the base of the ears and along the abdomen towards both extremities. A peculiar, perhaps characteristic offensive diarrhoea is present. Some

TABLE II

ANALYSIS OF OUTBREAKS OF SWINE FEVER IN GREAT BRITAIN

CONFIRMED DURING THE YEARS 1938–56

Year	Number of outbreaks	Number of pigs on premises at date of first report, including carcases	Number of pigs born or moved on to premises during outbreak	Total to be accounted for	Number of pigs which died or were destroyed (from date of first report to date of freedom)												Number of pigs slaughtered for food or moved off premises under licence	Number of pigs remaining on premises at date of freedom					
					From swine fever						From causes other than swine fever											
					Boars	Breeding sows	Unweaned pigs	Fatting pigs	Other swine	Total	Boars	Breeding sows	Unweaned pigs	Fatting pigs	Other swine	Total		Boars	Breeding sows	Unweaned pigs	Fatting pigs	Other swine	Total
1938	951	55,909	7,623	63,532	67	974	9,611	3,668	12,102	26,422 (41·59%)	—	19	572	34	159	784 (1·23%)	26,001 (40·93%)	134	1,457	2,960	2,757	3,017	10,325 (16·25%)
1939	3,286	185,629	20,161	205,790	272	3,920	28,899	13,031	38,466	84,588 (41·10%)	1	44	898	82	212	1,237 (0·60%)	89,928 (43·70%)	300	3,704	8,459	7,868	9,706	30,037 (14·60%)
940	5,019	263,453	29,496	292,949	277	4,507	35,522	18,736	47,912	106,954 (36·51%)	2	32	602	139	157	932 (0·32%)	137,562 (46·96%)	432	5,236	12,100	15,285	14,448	47,501 (16·21%)
1941	1,088	49,689	8,428	58,117	60	609	3,878	3,660	6,856	15,063 (25·92%)	1	8	328	52	79	468 (0·81%)	31,009 (53·36%)	147	1,182	2,380	4,590	3,278	11,577 (19·92%)
1942	451	29,044	7,082	36,126	33	425	2,137	2,195	2,679	7,469 (20·67%)	—	4	69	8	24	105 (0·29%)	20,472 (56·67%)	100	740	1,391	3,476	2,373	8,080 (22·37%)
1943	547	23,923	2,127	26,050	50	401	1,552	1,982	3,164	7,149 (27·44%)	—	2	18	3	6	29 (0·11%)	13,094 (50·27%)	79	495	1,097	2,331	1,776	5,778 (22·18%)
1944	1,449	53,563	6,068	59,621	237	1,789	5,892	4,166	8,861	20,945 (35·13%)	1	4	21	4	13	43 (0·07%)	24,178 (40·55%)	277	1,738	4,155	3,498	4,787	14,455 (24·25%)
1945	928	43,961	3,808	47,769	124	1,063	4,287	3,887	5,670	15,031 (31·47%)	—	6	22	5	17	50 (0·10%)	23,347 (48·88%)	114	922	2,363	3,610	2,332	9,341 (19·55%)
1946	347	16,360	1,928	18,288	44	388	1,448	1,421	2,321	5,622 (30·74%)	1	1	33	14	2	51 (0·28%)	7,326 (40·06%)	30	487	1,963	1,669	1,140	5,289 (28·92%
1947	37	1,302	139	1,441	3	33	120	83	45	284 (19·71%)	2	3	89	4	7	105 (7·28%)	437 (30·33%)	6	51	153	303	102	615 (42·68%)
1948	27	885	227	1,112	1	6	34	36	76	153 (13·76%)	—	—	5	3	5	13 (1·17%)	461 (41·46%)	3	72	245	77	88	485 (43·6%)
1949	5	369	87	456	—	2	—	14	15	31 (6·80%)	—	—	19	—	12	31 (6·80%)	71 (15·57%)	1	11	65	137	109	323 (70·83%)
1950	430	22,282	1,758	24,040	22	218	873	1,977	2,087	5,177 (21·53%)	—	10	75	46	20	151 (0·62%)	14,263 (59·33%)	45	559	1,454	915	1,477	4,450 (18·51%)
1951	1,343	75,837	16,097	91,934	108	1,310	8,182	4,906	7,095	21,601 (23·5%)	—	14	347	49	59	469 (0·51%)	44,713 (48·63%)	264	2,354	6,527	9,230	6,776	25,151 (27·36%)
1952	891	54,756	8,798	63,554	51	643	5,098	3,190	4,398	13,380 (21·05%)	1	14	224	157	105	501 (0·79%)	32,614 (51·32%)	144	1,666	4,604	5,260	5,485	17,159 (27·0%)
1953	2,713	161,046	36,342	197,388	123	1,512	16,780	9,435	13,298	41,148 (20·85%)	6	40	658	178	202	1,084 (0·55%)	106,059 (53·73%)	434	5,425	15,352	18,886	9,000	49,097 (24·87%)
1954	1,455	118,673	27,370	146,043	29	500	11,862	8,893	7,999	29,283 (20·0%)	2	33	725	198	120	1,078 (0·73%)	68,880 (47·16%)	413	5,157	15,961	18,994	10,277	50,802 (34·78%)
1955	1,403	120,737	22,613	143,350	26	446	10,553	9,485	7,841	28,351 (19·78%)	1	17	471	114	90	693 (0·48%)	69,380 (48·40%)	309	4,023	8,132	20,839	10,623	44,926 (31·34%)
1956	741	71,905	15,925	87,830	15	198	5,309	5,341	3,945	14,808 (16·86%)	1	12	536	104	98	751 (0·86%)	42,757 (48·68%)	216	2,510	5,815	14,876	6,097	29,514 (33·60%)

of the pigs succumb within a few days. Pigs which do not die in the first few days develop pneumonia with discharge from the eyes and nose. Some pigs may recover as the result of feeding of antibiotics and careful nursing, but in most cases the pneumonic symptoms predominate and death occurs. Pregnant sows may abort or dead or weak undersized piglets may be produced. Many piglets show characteristic symptoms of " trembling."

In describing the symptoms consideration must be given to the question of whether a recovered case can become a carrier, and on this subject the evidence seems to be against the possibility. The Departmental Committee in 1915 came to the conclusion that positive experimental evidence was insufficient to establish the existence of carriers, and expressed the following view:— " Taken with the circumstantial evidence, however, which has accumulated over a period of years, the evidence is strongly in favour of the existence of recovered and immune carriers and it would be unwise to disregard their existence in considering operations in relation to eradication." In one case a boar suspected of having infected a group of sows was tested and found to be immune against the disease although it was never known to have been clinically affected.

Michalka (1931) stated that he was able to demonstrate virus experimentally in the haemorrhagic lymph glands of immune animals up to 10 months in 76 per cent. of the cases studied, and from this high percentage of so-called virus carriers, he accepted the likelihood of what he terms an " infectious immunity."

Manninger & Csontos (1932), Manninger & Hegyeli (1932), Uhlenhuth, Miessner & Geiger (1933) and Beller & Biermann (1933), all failed to confirm the work of Michalka and reached the conclusion that the danger was slight under practical conditions. Nevertheless, there does seem to be a need for further experimental work in this country, since many veterinary surgeons hold the view that the existence of carrier sows has been responsible for new outbreaks of the disease or recrudescences.

Principal Causes of Spread

The important part played by infected pigs, slaughtered in the incubative stage of the disease and used for human food, has already been referred to, but an analysis of many of the outbreaks shows that the movement of pigs through public markets accounts for over 50 per cent. of the outbreaks in Great Britain. The virus may gain entry to the pig by inhalation but there is no doubt from the experience obtained in tracing and studying outbreaks, that urine of infected pigs draining into the adjoining pens and alleyways, is a common method of spreading the disease. To quote one example, some 30 outbreaks arose in 1953 in 10 countries as a result of the sale of one infected pen from one large market. This pen of pigs was owned by a dealer and he moved them within the market three times before ultimately selling them. Many owners return from markets (after walking from pen to pen) and go immediately to examine their pigs at home in order to assess their value whilst the state of the trade is still fresh in their minds. In addition, of course, there are the dangers of infected lorries and bedding taken from dirty market pens to be placed in lorries recently washed out. The use of unsterilised knives, syringes, needles and infected clothing by castrators and veterinary surgeons may also be a source of infection.

Smith (1957) showed that it was possible to transmit swine fever by grinding up stable flies (*Stomoxys calcitrans*) exposed to infected pigs and injecting the material into susceptible pigs.

Evans & Ford (1957) have expressed the view that birds must have played an important part in the intensive spread of the disease in the fen country in the years 1939–40 and 1951–3. For no apparent reasons disease spread from farm to farm where pigs were kept in open fold yards which were ideal for the free movement of birds from yard to yard in search of food. If starlings are accepted as mechanical carriers of foot-and-mouth disease there seems no adequate reason why they should not also be responsible sometimes for spreading swine fever, specially under the farming conditions which exist in the East of England. Nevertheless, the cause of most of the initial outbreaks is undoubtedly infected swill with subsequent spread of infection by movement of infected pigs particularly through markets.

The True Lesions of Swine Fever

Many veterinarians have a confused idea of the typical *post-mortem* picture of pigs dead from swine fever. The reason for this confusion undoubtedly lies in the widespread fallacy that a positive diagnosis will not be confirmed by the Ministry without the presence of such lesions as " button " ulcers. There are a number of publications on the histo-pathology of swine fever. The first most notable contributions were made by Seifreid (1931), Roehner (1931), and by Cain & Seifreid (1932). These workers pointed out that it was impossible to establish a diagnosis of the disease from gross anatomical findings. This was especially true in cases which showed only part of the typical complex of lesions on autopsy, haemorrhages in the kidneys, lymph-nodes, bladder, large intestines and skin.

Doyle (1933) states that petechial haemorrhages are the true lesions of acute swine fever. They may occur on the membranes lining the thoracic and abdominal cavities and organs ; on the intestinal mucous membrane, in the larynx, on the skin and in the subcutaneous tissue.

Kernkamp (1939) in a study of the frequency of lesions in organs and tissues of 334 infected pigs (48 artificially infected and 286 naturally infected) found that the kidneys (92.5 per cent.), urinary bladder (83.2 per cent.), lymph node (83.5 per cent.) were the most commonly affected organs and that the spleen (62.2 per cent.) and larynx (59.6 per cent.) were second in importance whilst the large intestine only showed haemorrhages in the mucosae in 24.6 per cent. and the small intestine in as little as 9.3 per cent. The principal gross pathological lesions are apparently produced by disturbances in the supply of blood to the tissues. Haemorrhagic changes, petechiae and the more diffuse blood changes predominate as a result of the infarction of the arterioles and ischaemia

of the associated capillary network. The inflammatory reactions are secondary changes which are superimposed on a tissue that has already been rendered less resistant by the action of the virus. All these writers agreed that the occurrence of haemorrhagic changes in the kidneys are outstanding (Fig. 3). The urinary bladder, lymph nodes, spleen and larynx showed changes involving the blood vascular tissues in more than 70 per cent. of Kernkamp's cases, which suggests the importance of examining these parts when conducting an autopsy.

A much higher percentage of the naturally infected swine showed pneumonic lesions. These findings might be expected since it is more than probable that many of these pigs were subjected to environmental conditions contributing to the development of pneumonia, the early secondary conditions tended to overshadow the true inflammatory lesions produced by the virus. The intestinal ulceration is more likely to occur in the lingering and more chronic cases since secondary bacterial invasion of the damaged intestinal mucosae takes time to produce ulceration (Fig. 4).

Doyle (1933) also states that the frequency of intestinal ulceration in pigs infected with acute swine fever varies considerably in different outbreaks. It occurred in about one-third of the pigs infected at Weybridge. The presence of ulceration would appear to depend to a considerable extent on the bacterial flora of the alimentary tract which is in turn influenced by the conditions of sanitation under which pigs are kept; sanitation and feeding and especially the administration of antibiotics appear to reduce the incidence of intestinal ulceration. This would support the general conception that ulceration is produced by the action of certain secondary organisms, but probably only when these particular organisms are present in sufficient number. It is generally recognised by pathologists that intestinal ulceration is not caused by the virus alone.

Acute and chronic lesions can occur in the cardiac portion of the stomach but if confined to this organ, are more often of dietetic origin. There is no doubt that in chronic cases the only lesions may be ulceration in the large bowel since the haemorrhagic lesions of typical swine fever have been resolved by the natural processes of healing.

Done (1957) has made a valuable intensive study of the brain lesions in this disease and has expressed the view that neuro-pathological examination provides a very useful aid to the diagnosis of swine fever. It is obvious that however valuable such lesions might be as an aid to diagnosis in the laboratory, they are of limited value in the field.

Diagnosis

The B.V.A. Handbook (1956) states "In swine fever more than in many diseases, it is necessary to take the entire clinical picture into account in diagnosis." Many practitioners must have smiled somewhat ruefully on reading this statement. They may recall incidents where they failed even to suspect the presence of swine fever and subsequently reported the existence of disease on another premises without realising that the pigs in question had been recently moved from the first farm, in many cases *via* a public market. No subject gives rise to more discussion and criticism than that of the diagnosis of swine fever, and among these is the strong view that the diagnosis should be decentralised. A visit to Weybridge laboratory (to examine the material submitted for examination) would soon convince the strongest critic of the hazards of such an alteration in current procedure. Mistakes may have been made at Weybridge but the margin of error would be far greater if the final diagnosis was handed over to the man in the field.

Every veterinary surgeon should be conversant with the instructions issued to local veterinary inspectors on swine fever. It is remarkable how many people still fail to submit the correct materials for diagnosis and do not even bother to open the intestines submitted for examination. Moreover, in some cases the organs and tissues submitted have been immersed in solutions of strong hot antiseptic with consequent disastrous effects on the appearance of the lesions when seen some 24 to 48 hours later at Weybridge.

Whilst it is generally agreed that the history and the entire clinical picture is all-important in reaching a diagnosis, nevertheless until it is possible to carry out properly controlled biological tests, no completely rational diagnosis can be given in all cases. To confirm a diagnosis, the injection of a susceptible pig would be necessary, a test both prohibitive in cost and impossible in practice. Investigations are being conducted to find a satisfactory simple specific test.

Molnar (1954) first successfully used the gel-diffusion precipitin test of Ouchterlony (1948) to demonstrate that precipitin reactions could be induced in the presence of substances containing the virus of swine fever and the corresponding specific immune serum of high titre. In carrying out these experiments Molnar used a commercial virus preparation and ground lymph nodes from virus-producing pigs.

More recently Mansi (1957) following up this work at Weybridge laboratory has also successfully used Ouchterlony's test in a modified form, to test tissues from swine fever infected pigs for the presence of specific precipitin antigen. He found that the pancreas gives a more marked reaction than other tissues. This work is being pursued and may prove to be of value in the diagnosis of outbreaks of swine fever at an early date. This test is apparently only of value after clinical symptoms have been present for a minimum of 5 days.

Important Points on Procedure

Every practising veterinary surgeon should have a copy of the "Handbook of Orders Relating to Diseases of Animals" (1951) which include the Swine Fever Order, 1938, giving in detail the legal position and official procedure for dealing with suspected disease.

Before entering any premises to deal with a suspected case of swine fever it is essential to be equipped with protective rubber coat, rubber gloves, a humane killer, a *post-mortem* knife, bowel scissors, bone forceps and a sharpening steel. This equipment should be kept in a special case and used for this work

only. This case should also carry sufficient greaseproof paper for wrapping specimens, a Ministry cardboard container and a label (provided by the Ministry) for sending specimens to the laboratory. It is well worth while carrying a small bucket and antiseptic, also some french chalk for use with the rubber gloves and a towel for finally wiping hands and instruments.

On entering the premises a call should always be made first to the house to examine the owner's record of movement of animals. While details of movements are being abstracted for the completion of enquiries in the Ministry's S.F.1 report form, the owner or his representative should be asked to provide a separate bucket of hot water and if possible to have the pig placed on a sack in a metal barrow. This facilitates the subsequent burial and cleanliness of the operation. If the pig is too large for the examination to be done in this way it should be brought unopened to the proposed burial site.

Nothing looks worse on farms than the carrying out of *post-mortem* examinations on the feeding house floor or the feeding passage of the pig house ; this is a carcase suspected to be infected with swine fever and every endeavour should be made to reduce the distribution of infection from it.

The B.V.A. Handbook gives a full and adequate description of how to make a *post-mortem* examination. In submitting material to Weybridge laboratory no containers other than those supplied by the Ministry should be used. The placing of organs in airtight plastic bags or tins cannot be too strongly deprecated as materials submitted in such a manner soon decompose. By studying the descriptions of the lesions present in swine fever already given earlier in this paper, it should be possible in all cases to submit specimens (Figs. 3 and 4) from the organs which are suitable for examination and likely to show lesions characteristic of the disease, namely kidneys, urinary bladder, lymph nodes and intestines.

Completion of Reports

The necessity of giving full accurate information in the report form provided by the Ministry cannot be too strongly emphasised. It is still surprising to find that questions have apparently not been understood and that the answers are not given in simple terms. If this procedure was carried out in accordance with instructions there would be greater efficiency when reports are examined. A correct account of the number of pigs on the premises, the relative movement of pigs and persons, a full history (including a statement about swill feeding and crystal violet vaccination) an accurate description of the clinical picture and of the lesions found, are all essential to help the man in the laboratory to come to a satisfactory conclusion.

Differential Diagnosis

Paratyphoid infection and necrotic enteritis are the two most difficult conditions to differentiate from outbreaks of swine fever, especially in comparatively young pigs.

Goodwin (1957) states that enteritis is now one of the commonest reasons for seeking advice in the area served by the Cambridge Veterinary School. He states there is much work to be done in this field and that it would often be more profitable to look elsewhere in the pig for the cause of enteritis than in the intestines themselves.

In this connexion it should be pointed out that although sows may be successfully immunised against swine fever, their young pigs are susceptible to infection and consequently difficulty in diagnosis arises.

Any enteritis in young pigs may be swine fever and the possibility should be eliminated before treatment for other bowel conditions is started. The gel-diffusion precipitin test referred to previously should be of great value in such cases.

Timoney (1957) has recently made a comprehensive survey of oedema disease of swine and has clarified the syndrome of oedema. Nevertheless, it can only be concluded from experience in carrying out *post-mortems* that losses may be associated with feeding. It is possible to differentiate between the gelatinous appearance of oedema disease and the lesions produced in gastroenteritis of dietetic origin. It should also be possible to differentiate the lesions of swine fever if the general *post mortem* described previously is kept in mind. No prudent veterinary surgeon who has the slightest doubt should fail to report the suspected existence of disease. It is better to be cautious than to allow the dissemination of disease through a public market. Restrictions prohibiting the movement of pigs should be no hardship pending an early positive or negative diagnosis of swine fever.

Advice on How to Deal with Disease

Each individual outbreak must be considered on its merits and in relation to the type of pig keeping practised. If the majority of stock on the farm is kept for breeding then the immediate use of serum is advisable. Although the cost of serum is high, nevertheless, some very satisfactory results have been obtained provided the disease has not spread too far within the herd. In the case of premises where stock is fit for slaughter it should be carried out without delay. The very great dangers of licensing off apparently infected pigs should be kept constantly in mind.

Although not in accordance with official procedure, crystal violet vaccine has sometimes proved of great value in dealing with outbreaks of the disease in store pigs. Vaccination of infected pigs during an outbreak of disease appears to shorten its course though initial losses may be higher than normal. While its use in infected herds should be avoided, the owner should be fully advised of the possible risks in those few cases where its use is considered to be justified.

The Control of the Disease

I. Statutory

As soon as the disease is suspected it is the duty of the veterinary surgeon to report to the police who act on behalf of the local authority in carrying out the procedure for the control of the disease.

The police notify the head and local offices of the Ministry by telegram that swine fever has been suspected by an owner, and the Divisional Veterinary Officer is responsible for having the case dealt with expeditiously. When the disease has been reported,

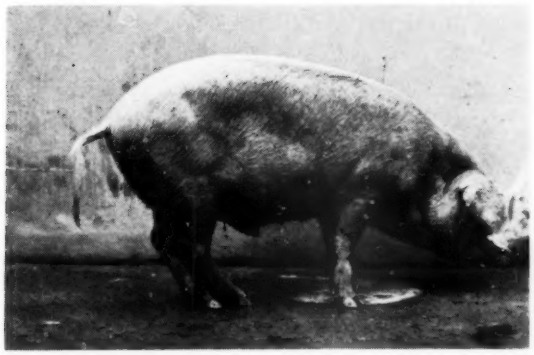


FIG. 1.—Showing pig affected with acute swine fever.

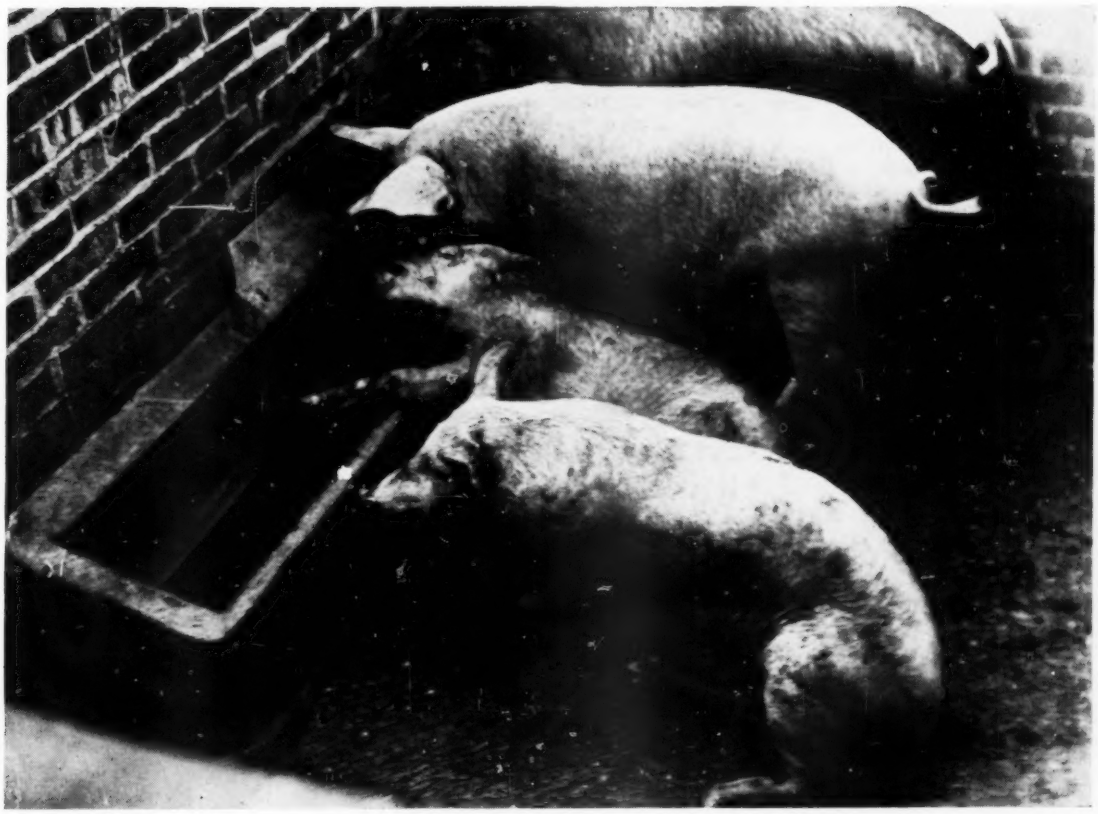


FIG. 2.—Showing pigs vaccinated with crystal violet vaccine and infected controls.

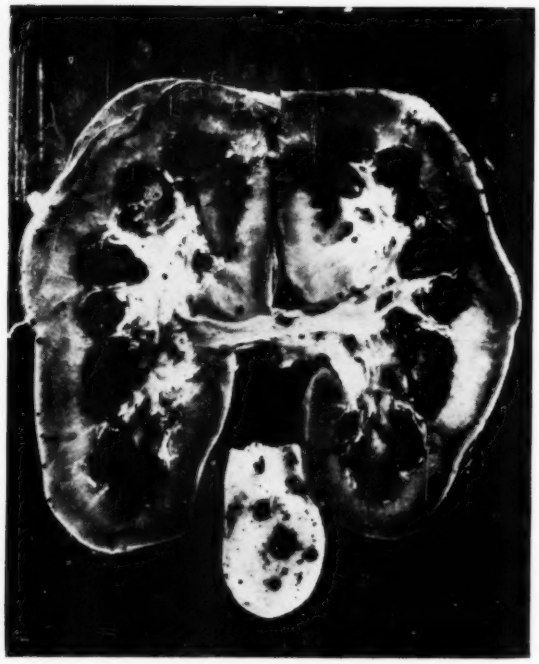


FIG. 3.—Showing haemorrhages in the kidney and bladder of a swine fever affected pig.

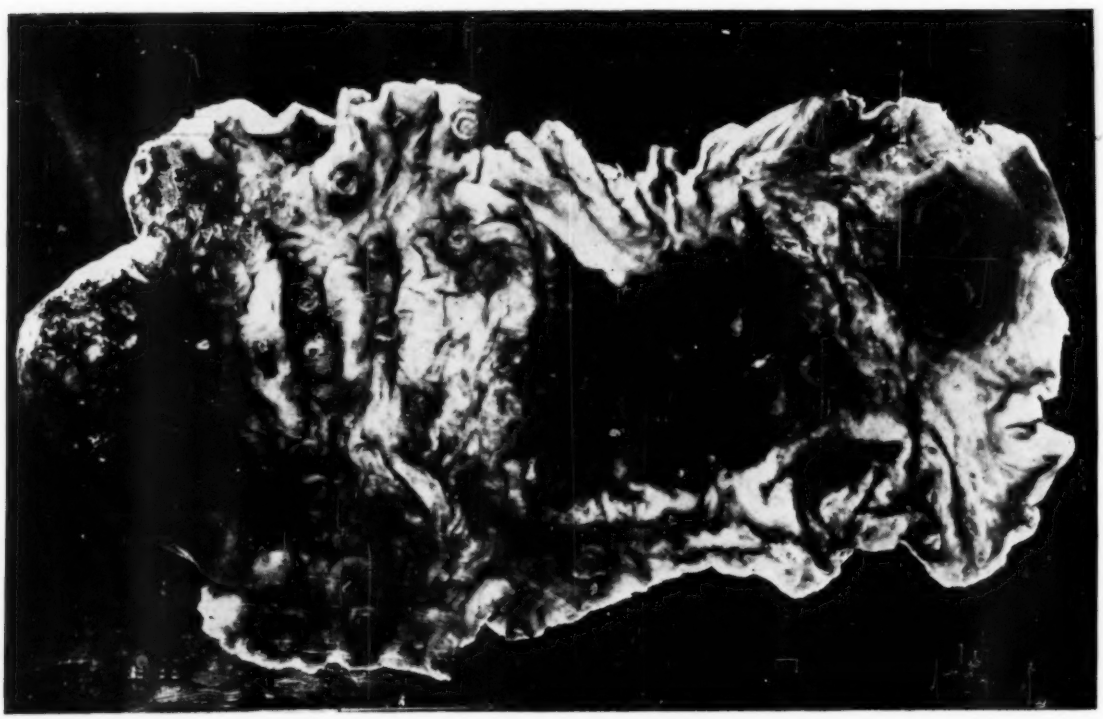


FIG. 4.—Showing ulceration of the large intestine in swine fever.

the police serve a notice defining the extent of the infected pr mises and specify rules which must be observed in relation to the infected places. Every veterinary surgeon should, on entering infected premises, ask to see this notice and he should confirm that the particulars entered thereon are correct. The attention of the owner should also be called to the importance of reading and observing the rules printed on the back of the notice. Restrictions remain on the infected premises until they are withdrawn by the head office of the Ministry.

In the event of the disease being confirmed, the outbreak is dealt with by a whole-time officer of the Ministry who endeavours to trace the origin of the outbreak and all animals or persons likely to have come in contact with the disease. Much of the value in tracing outbreaks is often lost owing to the delays which arise in reporting and confirming the existence of the disease.

Provisions are also made under the Swine Fever Order (1938) for placing under movement restrictions, premises in which there are pigs that have been exposed to infection. The cleansing and disinfection of lairs, pig dealers' premises, castrators' instruments, hands and boots ; and the keeping of registers by pig dealers, castrators and owners of boars are also provided for in this Order.

The Ministry of Agriculture, Fisheries and Food may make an order under the Swine Fever (Infected Areas Restrictions) Order of 1956 declaring any area in which there is an epidemic of swine fever to be an area infected with the disease. The purpose of such an order is to control the disease by prohibiting the general movement of pigs and the holding of sales of swine other than those authorised by the local authority and providing for immediate slaughter of the pigs. The movement of swine into and out of, and within the areas so specified, is also regulated.

Such orders have been effectively used to control the spread of the disease and of course when outbreaks of foot-and-mouth disease occur in an area the prohibition of movement of all animals has also been found to have a controlling effect on the spread of swine fever.

For the purpose of controlling the disease through the public markets, the Ministry have also made an order, The Regulation of Movement of Swine Order 1954, Amendment Order 1955 and the Swine Fever (Amendment) Order 1955. The main provisions contained in these orders are the regulation of movement of swine from markets and pig dealers' premises by means of movement licences which only permit the movement of pigs for slaughter or to specified premises for detention for 28 days.

The Swine Fever (Amendment) Order 1955 empowers local authorities to make regulations controlling the movement of swine whilst in markets, fairs, auctions or sale yards.

Relatively few local authorities have availed themselves of the provisions of this Order which can be used to prevent the movement of pigs from pen to pen in the public market. There is no doubt that such regulations are a valuable adjunct in the control of the disease. The advantages of recording pen numbers on movement licences from public markets is obvious.

There is no doubt that the marketing of fat and store pigs on separate days or in separate markets, would be of great value. Swill-fed pigs are often sold in public markets in an infective stage and many cases of swine fever with undiscovered origins are due to the sale of such pigs. Such infective pigs are responsible for spreading infection into alleyways of the market, loading banks and transport vehicles. Pig dealers and drivers walking from pen to pen also help to disseminate infection. Store pigs should not be sold through an auction ring. Pigs for grading have to pass over a weighbridge and therefore it is impossible to prevent their movements and yet prohibit the movement of store pigs, hence the desirability of separate marketing days for such stock.

The following measures designed for the control of the spread of all notifiable diseases also play an important part in the control of swine fever.

1. Diseases of Animals (Waste Foods) Order 1957. Swill must be boiled for one hour before feeding to stock, and stock must not come in contact with untreated swill.

2. The Movement of Animals (Record) Order 1925. Accurate records must be kept of all purchases and sales of pigs.

3. Transit of Animals Order 1927–47 inclusive. This requires the cleansing and disinfection of all vehicles often used for transport of animals.

4. Market, Sales and Lairs Orders 1925–27 inclusive. These orders require the paving, cleansing and disinfection of sale-yards, lairs and public markets which are used for the sale of pigs.

The sale of store pigs no longer takes place in the small country market. There is an ever increasing tendency for the centralised marketing of large numbers of store pigs in selected towns such as Doncaster, Exeter, Gloucester, Guildford, Hereford, Reading and Taunton. Such centralisation increases the possibility of infection being introduced into the market, the spread of such infection in the market and its wide distribution from the market. There is no doubt that these measures have contributed much to the control of the disease under these conditions but they cannot be absolute.

There is much still to be done in the educating of the pig farmer to adopt still more active measures to control a disease whose incidence is still far too high and which remains a great drain on the financial returns received by individual pig keepers.

II. Vaccination

Dorset, McBryde & Niles (1908) discovered that swine could be immunised by simultaneous inoculation of virulent virus and potent immune sera. The success of such a method of vaccination was dependent upon many factors and its use was not without considerable danger through the use of virulent virus which could thus set up foci of infection. This was especially so in the United States of America and virulent virus lingered on premises practising such vaccinations in the main pig-producing areas.

The short-comings of this method led investigators

to search for other means of producing a satisfactory immunity and the fruits of their efforts were the vaccine containing inactivated virus, tissue vaccine (Boynton, 1933) and crystal violet vaccine. This vaccine was introduced in 1934 by Dorset, of the Bureau of Animal Industry, U.S.A., but much of the subsequent work was carried out by his colleagues, McBryde & Cole (1936).

Doyle (1949) reported on immunisation against swine fever to the 14th International Veterinary Congress. Although he expressed the view that the serum-virus method was one of the most effective methods of immunisation yet evolved against animal disease, he stated that such a method caused a varying degree of mortality in unthrifty stock. Further, as its immunising powers depended upon the presence of " live " virus it was always potentially dangerous in careless or inefficient hands. For these reasons such a method of vaccination has not been used in Great Britain.

As a result of field trials in this country, Matthews & Doyle (1943) and Doyle & McIlroy (1944), it was agreed in May, 1947, to permit the use of crystal violet vaccine and a unit for the production of the vaccine was set up at Weybridge Laboratory. The Diagram II clearly shows the expanding production of the vaccine since its introduction. One-quarter of the total vaccine issued is to the Eastern Counties of England.

The Ministry have prepared a leaflet giving instructions on the use of crystal violet vaccine and everyone should read these instructions before using the vaccine. The leaflet gives factual information about swine fever and the vaccine including its use, dosage and sites of injection. In addition important instructions are issued on the precautions which should be taken by those using the vaccine.

These may be summarised as follows :—

A. Sterilisation of syringes and needles by complete immersion in boiling water for five minutes.

B. A supply of sterilised needles so that frequent changes are possible.

C. The remains of vaccine in bottles should not be used on another farm. Unopened bottles should likewise not be contaminated.

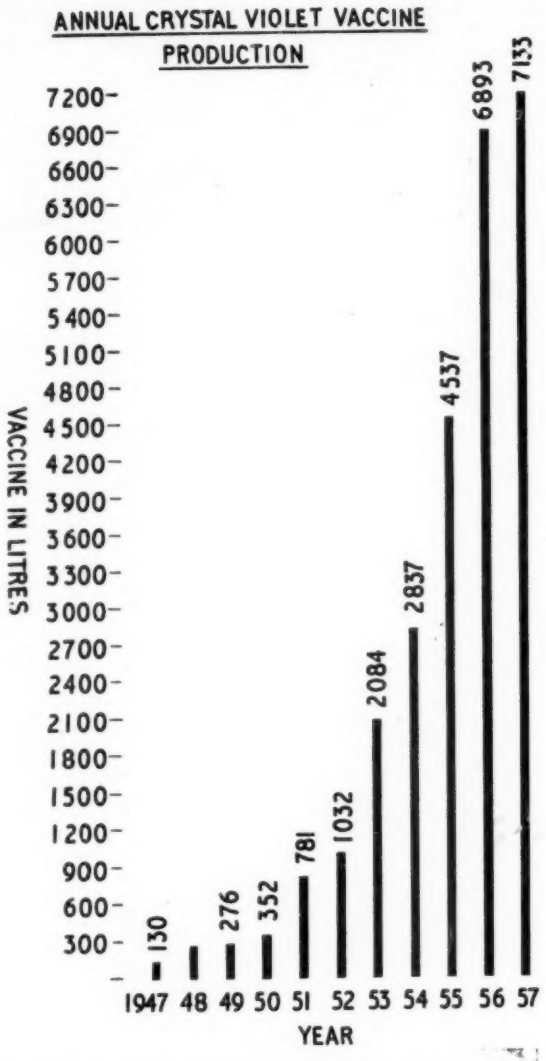
D. Veterinary surgeons who encounter swine fever in the course of their practice should not undertake vaccinations for a period of 24 hours.

When vaccinating, disinfected protective clothing should be worn.

In connection with these precautions it might not be out of place to mention that investigations into apparent breakdowns in vaccinated herds have sometimes pointed to the possibility of veterinary surgeons being responsible for the introduction of infection. Those members of the profession in private practice who are also employed on meat inspection should remember that they may be handling highly infected material in the slaughterhouses.

When pigs are vaccinated it is also valuable to know the number of pigs injected, the number of different groups, the batch number of vaccine and the date of issue.

In December, 1953, the Registered Vaccination



Herds Scheme came into operation after consultation with the British Veterinary Association and the National Farmers Union and full information on this scheme can be obtained from the various Divisional Veterinary Offices throughout the country. The success of this scheme has varied widely and many farmers apparently prefer to vaccinate their pigs outside the scheme.

There is no doubt that the use of the crystal violet vaccine seems to have done much to control swine fever in certain areas. The Isle of Ely is an outstanding example of a county where the incidence is now negligible. The farmers and veterinary surgeons in the Eastern Counties seem likewise to be more conscious of the value of crystal violet vaccination than in some other pig-producing areas.

A considerable amount of research has been directed to attenuating the swine fever virus for vaccine

purposes and in discussing vaccination it is necessary to review some of this work and to call attention to some of the experiences and difficulties which have been encountered. Since the virus of swine fever has a very high degree of species specificity it has not been easy to work with it.

Koprowski, James & Cox (1946 and 1951) were successful in passaging the virus through rabbits and they found that up to the 50th rabbit passage level, a 10 per cent. suspension of infected rabbit spleen tissue was lethal to all pigs inoculated. After that time, the strain became modified and lost its lethal properties somewhere between the 145th and 207th rabbit passage and as a result of challenge it was shown that the modified virus retained its antigenic capacity.

Following these workers' studies, vaccines were prepared using rabbit tissue representing the 240th to 295th rabbit passage levels of the lapinised strain. Harvey, Burkhart, Leaming, Percival, Schroeder & Welsh (1951) reported that the results with the field use of this lapinised strain conferred protection upon the majority of vaccinated animals within 3 to 5 days after inoculation. These workers stated that the Lederle lapinised strain of modified swine fever virus seemed to be free of objections or limitations. It was non-pathogenic, was not observed to gain virulence by passage from pig to pig, and since it was produced from rabbits was obviously devoid of organisms pathogenic for pigs. The virus was stable after desiccation and could be distributed in this form in the field ; moreover, immunity was solid at 12 months.

In an editorial, the *Journal of the American Veterinary Medical Association* (1952) reported on a questionnaire sent out to some members of the American veterinary profession on the use of swine fever vaccines and stated that 24 out of 48 replied. Seventeen used varying amounts of one or more of the vaccines, and 9 stated they were disappointed with the results obtained from the vaccines at present available. Two million two hundred thousand pigs were injected with crystal violet vaccine and they had 2,265 pigs affected (1.2 per cent.) while 11,180 were vaccinated with the modified virus and they had 361 pigs affected (3.2 per cent.). The widespread differences in the numbers that were vaccinated do not allow for a strict comparison but are no doubt of some significance. The editorial further pointed out that the producers of these vaccines conscientiously warned the public of the principal disadvantage of their vaccines, namely the slow development of immunity and its uncertain duration.

Huck & Hudson (1957) at Weybridge Laboratory have been engaged on very valuable work with lapinised virus and as a result of their work field trials were conducted in Great Britain in 1954–7 amongst disease-free herds. It has been found that at present the vaccine cannot be recommended for general use in the field since a pig injected with lapinised swine fever virus may spread the attenuated virus by contact to unvaccinated pigs. This infection may produce lesions which are indistinguishable from those found in swine fever and may produce a positive precipitin antigen and antibody reaction.

When working on lapinised vaccine, Huck demonstrated experimentally that " by-passing " of the dam's immunity by the swine fever virus was possible and seems paralleled in human medicine by the ability of rubella infection (German measles) to establish itself in the human foetus even in mothers solidly immune to the virus.

Lundstrom (1952) showed that the incidence of congenital heart disease was significantly higher in infants whose mothers had been exposed to rubella in the first 4 months of pregnancy, even when the mothers had previously suffered from rubella and gave no history of illness in pregnancy. Evidently the foetus is highly susceptible during early pregnancy and can be attacked by an infectious organism when there is no sign of ill health in the mother. Field evidence in swine fever seems to suggest that something of a similar nature may occur in sows when subject to swine fever infection.

It is important to appreciate that herds which are regularly vaccinated under the Registered Herds Vaccination Scheme are just as likely as any other breeding herds to have infection introduced into them. There is always a nucleus of susceptible young unvaccinated pigs in such herds. Owners and veterinary surgeons do not seem to realise this risk and swine fever can cause losses in young piglets and remain undiagnosed in the initial stage. Moreover, it sometimes appears that pregnant animals, themselves immune, can become infected and the infection establish itself in foetuses *in utero*. Sows produce poor litters, all dead, partly dead, weak undersized piglets and many show the characteristic symptoms of " trembling." It has been previously stated in this article that further work should be carried out on the " carrier sow." The evidence which we have of vaccination in the field suggests the necessity for such an investigation.

Goodwin, Saison & Coombs (1955) have also drawn attention to the possibility of haemolytic disease in the progeny of sows subjected to vaccination.

It must not be assumed from these observations that crystal violet vaccine is not a very valuable method of immunisation. In presenting this article to the practitioner, it is essential to point out that breakdowns can occur in herds where crystal violet vaccine is used and that it is necessary to warn owners of the dangers of infection being allowed to enter their herds. In the production of crystal violet vaccine every possible control is exercised and each batch is produced under ideal conditions and vigilantly tested for sterility and potency by challenging each batch with a virulent strain of virus (1,000 M.L.D.s). The fact that a few breakdowns do occur through the accidental introduction of disease should in no way prejudice its use.

It is interesting to note from Table II, that in the herds where swine fever has occurred, the number of pigs now surviving on farms is 33 per cent. as compared with 16 per cent. Although there is no statistical evidence available, crystal violet vaccine may have played some part in this survival. In making this observation, it must not be forgotten that these figures represent in the main swine fever outbreaks

on premises which make a habit of purchasing market pigs or feeding swill and are not breeding farms. Moreover, there is now better housing and management as well as the widespread use of antibiotic in feeding-stuffs, all of which no doubt contribute to the creation of survivors in outbreaks of the disease.

Much work still remains to be carried out on the immunisation of pigs against swine fever. No doubt in time it may be possible to obtain chemicals which will render the virus innocuous but more antigenic. If the virus could be adapted to grow under artificial conditions, still further progress could be made. The practitioner and the pig keeper should remember that the problem is still receiving attention from the research workers and further research may provide a more satisfactory solution.

III. By Slaughter

As previously stated, the slaughter policy together with infected area restrictions, was tried from 1894 to 1915. The final report of the Departmental Committee in 1915 brought about its abandonment. The Committee reached the conclusion that the extirpation of swine fever was practical only by such drastic slaughter measures as to involve a prohibitive outlay, and by such complete restrictions in movements as to be fatal to the industry of pig keeping.

Tables I, II and III clearly show that although the pig population is now at its highest peak, the disease position to-day is comparatively better than it was prior to 1940, although far from satisfactory. Nevertheless, if the more extensive movement of pigs is taken into consideration together with the large number of pigs sold in the larger markets, the position has not deteriorated to the extent that might be expected. The conditions have altered considerably, and whilst a policy of wholesale slaughter might at present be impossible, some modified procedure may be possible in the future. Experience with the use of the gel-diffusion precipitin test (which can differentiate between antibody and antigen reactions in pigs) might permit a combined policy of slaughter, vaccination, and some modification of the widespread movement of pigs. This view is a purely personal one and should in no way be taken as an indication of future policy which the writer is in no position to discuss.

Acknowledgments.—The writer wishes to express his thanks to Mr. J. N. Ritchie, Chief Veterinary Officer and to Dr. A. W. Stableforth, Director of the Veterinary Laboratory for finding the time and facilities for this article to be written.

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Grateful thanks are due to them all and especially to Mr. J. Smith who did so much to make my visit to Weybridge memorable and enjoyable.

TABLE III
SHOWING TOTAL NUMBER OF PIGS AT JUNE 4TH, FROM 1938–57 INCLUSIVE

	England and Wales	Scotland	Great Britain
1938	3,564,267	257,374	3,821,641
1939	3,515,000	252,000	3,767,000
1940	3,360,000	271,000	3,631,000
1941	1,989,000	218,000	2,207,000
1942	1,678,000	193,000	1,872,000
1943	1,381,000	190,000	1,571,000
1944	1,463,000	168,000	1,631,000
1945	1,732,000	171,000	1,903,000
1946	1,474,000	169,000	1,644,000
1947	1,146,000	148,000	1,294,000
1948	1,632,000	184,000	1,816,000
1949	2,132,000	232,000	2,364,000
1950	2,212,000	251,000	2,463,000
1951	2,967,000	339,000	3,306,000
1952	3,840,000	447,000	4,287,000
1953	3,936,000	471,000	4,406,000
1954	4,878 000	553,000	5,431,000
1955	4,677,000	480,000	5,157,000
1956	4,389,000	431,000	4,821,000
1957	4,762,000	483,000	5,245,000

These figures are taken from Agricultural Statistics—United Kingdom, Agricultural Census and Production. They do not include small pig keepers with holdings of one acre or iess. H.M.S.O., London.

In addition, mention must be made of the kindness and help rendered by Mr. M. Crawford, Director, Commonwealth Bureau of Animal Health, Weybridge, and his staff.

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(Concluded at foot of adjoining column)

Studies on Anaemia in Pigs

III.—Comparison of One, Two and Three Injections of Iron for Pigs Reared Indoors

BY

R. S. BARBER, R. BRAUDE, P. M. CLARKE and K. G. MITCHELL

National Institute for Research in Dairying, University of Reading

BARBER, Braude and Mitchell (1955a) observed a secondary fall in blood haemoglobin at 3 to 5 weeks of age in suckling pigs reared indoors, in spite of either daily oral dosing with iron pyrophosphate during the second week, or of a single intramuscular injection of iron on the seventh day of life.

Subsequent studies (Barber, Braude & Mitchell, 1955b) showed that this secondary fall in haemoglobin did not occur in pigs reared outdoors on pasture. In this, as in previous studies (Barber, Braude & Mitchell, 1953), the pigs reared on pasture were significantly heavier at 8 weeks than those reared indoors. It was suggested that since the pigs did not begin to eat creep meal in amounts that would provide significant quantities of iron until the last 2 weeks or so of suckling, the fall in blood haemoglobin in indoor reared litters was probably a simple reflection of this pattern of creep meal consumption. On the other hand, the continuous supply of iron available to the outdoor reared litters from the soil and vegetation prevented this fall in haemoglobin. It seems likely that the difference in growth rate between the indoor and outdoor reared litters was, at least in part, the direct result of this difference in iron intake, even though no signs of clinical anaemia were observed in the pigs kept indoors.

The present experiment was carried out to investigate further this suggestion. The object of the trial was to try to maintain by means of additional iron injections, haemoglobin levels in pigs reared indoors which would be similar to those recorded in outdoor reared pigs. The litters used in this study also participated in a large experiment in which the value of 4 different creep feeds was compared.

Experimental

Treatments

The following 3 iron injection treatments were included, each injection consisting of 2 ml. of "Imferon"* given intramuscularly into the muscle of the hind leg:—

1. One injection, given on the 4th day of life.

2. Two injections, the first on the 4th and the second on the 14th day of life.

3. Three injections, the first on the 4th, the second on the 14th and the third on the 28th day of life.

An experimental unit consisted of 3 littermate pigs of approximately equal weight when 4 days old and the 3 iron treatments given were allocated at random within each unit. Eight litters, kept indoors from birth to weaning, provided the 20 pigs on each iron treatment. The pigs were weighed at birth, on the fourth and seventh day of life and thereafter weekly up to 8 weeks of age. The haemoglobin content of the blood of each pig was determined at the same time as the pigs were weighed, using the method described previously (Barber *et al.*, 1955a).

The 4 creep feeds, A, B, C, and D were allocated at random to 2 blocks of 4 litters each, so that there were 2 litters on each diet and in these litters 5 piglets on each iron injection treatment. The creep feeds were provided *ad lib.* from the tenth day of life and the consumption was measured daily. Supplementary iron was added to each of the creep diets; the creep meal used in the previous work (Barber *et al.*, 1955a, b) did not have supplementary iron added but was otherwise comparable to creep diet A.

Results and Discussion

One pig that received one iron injection in a litter getting creep feed B died during the fourth week of life from unknown causes. Statistical analyses were made of the weights at 8 weeks and of the blood haemoglobin values at 2, 4, 6 and 8 weeks, using least squares technique to allow for the missing value. The resulting means and standard errors are given in Table I. The mean live-weights and blood haemoglobin levels, averaged over all four creep diets, are also shown graphically in Figs. 1 and 2; in Fig. 3, the mean haemoglobin levels associated with each diet separately are given, together with the mean consumption of creep feed per pig on each diet.

Analyses of covariance on sex and initial value (except initial bodyweight which was the basis of the grouping within litters) were carried out for each variable; the only significant regression was that of

* Benger Laboratories Ltd., containing 50 mg. Fe per ml.

Swine Fever.—*Concluded.*

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TABLE I

MEAN VALUES FOR WEIGHT AT 8 WEEKS, AND HAEMOGLOBIN AT 2, 4, 6 and 8 WEEKS OF PIGS RECEIVING 1, 2 OR 3 IRON INJECTIONS

Injections	Creep meal A	B	C	D	S.E. horizontal comparisons	Mean
			Weight at 8 weeks (lb.)			
1	35·2	36·0	38·2	38·8		37·0
2	35·6	34·5	38·0	36·7	3·36	36·2
3	35·0	37·4	33·0	40·9		36·6
S.E. vertical comparisons			2.20			1·10
Mean	35·3	36·0	36·4	38·8		36·6
			Haemoglobin at 2 weeks (g. per 100 ml.)			
Mean	10·75	11·03	11·13	10·51	0·326 (3 d.f.)	10·85
			Haemoglobin at 4 weeks (g. per 100 ml.)			
1	8·79	8·42	8·96	9·00	0·444	8·79
2	11·43	12·22	12·08	11·31	0·360	11·76
Difference	2·64	3·80	3·12	2·31	0·456*	2·97
			Haemoglobin at 6 weeks (g. per 100 ml.)			
1	9·10	7·98	8·30	8·30		8·42
2	10·43	10·75	10·12	9·73	0·381	10·26
3	11·41	10·99	11·03	10·57		11·00
S.E. vertical comparisons			0·367			0·184
			Haemoglobin at 8 weeks (g. per 100 ml.)			
1	9·91	9·52	10·40	8·33		9·54
2	10·82	10·40	11·17	8·58	0·630	10·24
3	10·57	10·68	10·61	10·01		10·47
S.E. vertical comparisons			0·286			0·143

* Standard error also for testing significance of differences for individual diets.

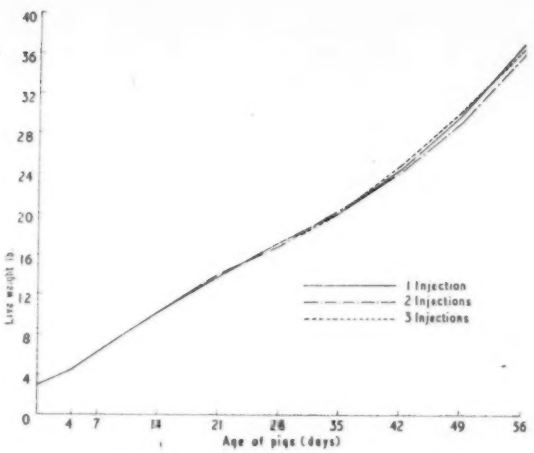

FIG. 1.—Mean live-weight curves of pigs given 1, 2 or 3 iron injections.

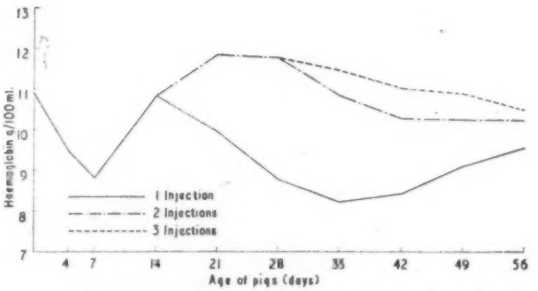

FIG. 2.—Mean haemoglobin content of the blood.

haemoglobins at 2 weeks on haemoglobins at birth, and since this does not affect any treatment comparisons, no adjustments for regressions have been made in the Table. Analyses of differences between creep feeds will be included in a subsequent publication, since the data from the 8 litters presented here represent only a small proportion of the total number to be involved in this comparison.

Weight at 8 weeks

There were no significant differences ($P > 0.05$) between the means for the different iron injection treatments, either for any one diet or averaged over all 4 diets. The difference between sexes was also not significant ($P > 0.05$).

Blood haemoglobins

Except for the pigs on creep feed D, the blood haemoglobins presented a fairly constant picture on each diet. Following a sharp fall after birth there was a marked rise in response to the iron injection given on the fourth day of life, reaching a peak in the 2nd to 3rd weeks of life. As previously observed (Barber *et al.*, 1955a), the haemoglobin level in the pigs not given further iron injections, then showed a marked secondary fall which continued until the 5th to 6th week of life. A substantial recovery then occurred and a level of between 9.5 to 10.5 g. haemoglobin per 100 ml. of blood was reached by 8 weeks, except for the pigs receiving creep feed D. In the latter the haemoglobin level remained at about 8.3 g. per 100 ml. from the end of the 5th week to 8 weeks of age.

The pigs which received a second iron injection on the 14th day showed a further rise in blood haemoglobin, reaching a peak in the 3rd to 4th weeks of life. A fall then occurred, followed by some recovery or levelling off towards the end of the suckling period, except in the case of the pigs on creep feed D, which continued to fall steadily to 8 weeks. In all cases, however, the haemoglobin levels in the pigs given 2 iron injections were, in general, significantly higher than in those animals that only received one injection.

In pigs that received a third injection of iron on the 28th day, the haemoglobin level was significantly higher at 6 weeks than that in the pigs which received 2 iron injections ($P < 0.01$). There was, however, an overall tendency for the haemoglobin level to fall in the later stages of the suckling period, so that by

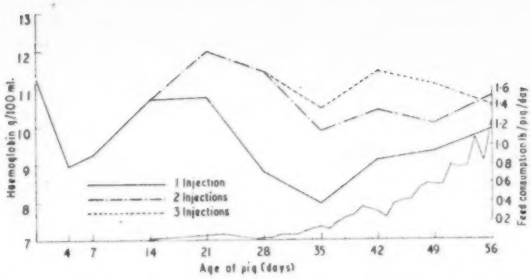

FIG. 3.—Mean haemoglobin content of the blood and amount of creep feed eaten by pigs receiving different creep feeds. Creep feed A.

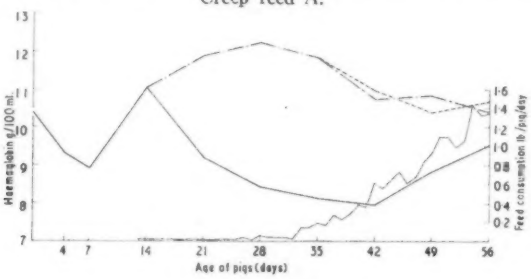

FIG. 3. (contd.) Creep feed B.

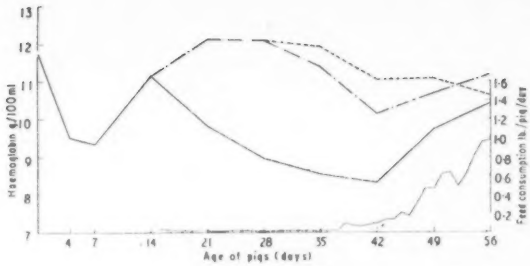

FIG. 3. (contd.) Creep feed C.

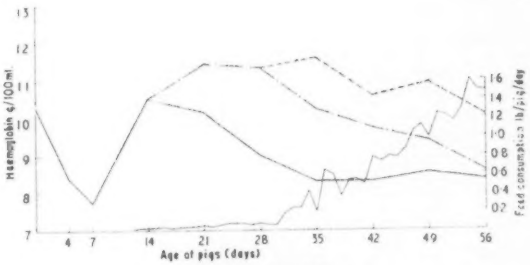

FIG. 3. (contd.) Creep feed D.

the 56th day the mean difference in haemoglobin level between the pigs that had 2 or 3 injections, on each diet except creep feed D, was not significant. In the case of the latter diet the haemoglobin level at 8 weeks was significantly higher in the pigs given 3 injections than in those given only one or two injections, and did, in fact, not differ significantly from that in the corresponding pigs on the other 3 diets.

In all cases, therefore, when the pigs were given 3 iron injections at intervals throughout the suckling period, a blood haemoglobin curve resulted that was significantly above that seen in pigs given only one injection, and which was similar to, although not quite so high, as that previously observed (Barber *et al.*, 1955b) in outdoor reared litters. In spite of this, however, there were no significant differences in weight at any stage of the 8 weeks suckling period between any of the injection treatments, which suggests that the problem of the better growth of outdoor as compared with indoor reared litters was not connected with the observed differences in blood haemoglobin levels between the pigs on the 2 different systems of rearing. At the same time the blood haemoglobin levels in the pigs given 3 injections did tend to drop in the later stages of the suckling period, unlike those in the outdoor reared pigs previously observed (Barber *et al.*, 1955b). In addition the rise in the blood haemoglobin, following the secondary fall, of the pigs given the one injection was on all diets except creep feed D, rather more marked than that observed by Barber *et al.* (1955a, b), in the earlier studies. This was, in all probability, associated with the iron supplement added to the creep feeds in the present experiment. Nevertheless, it is felt that there was sufficient difference between the blood haemoglobin picture of the pigs given one, as compared with three iron injections, to expect some differences in growth rate to have occurred if the hypothesis, that the better growth of the outdoor reared pigs was associated with differences in iron supply, had been well founded.

Work is now in progress in which the observed differences in the blood haemoglobin curves of the pigs that received creep feed D, compared with those of the pigs on the other three diets, are being investigated further.

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THE COLONIAL VETERINARY SERVICE

Promotions. Mr. P. D. L. Guilbride, Veterinary Investigation Officer, Jamaica, becomes Deputy Chief Research Officer, Uganda; Mr. M. A. Petris, Veterinary Officer, Class II, Cyprus, becomes Veterinary Officer, Class I, Cyprus; Mr. P. J. Sheehy, S.V.O., Northern Rhodesia, becomes Deputy Director of Veterinary Services, Northern Rhodesia.

New appointments. Mr. A. S. Brunton, Veterinary Officer, Northern Rhodesia; Mr. P. B. Capstick, Veterinary Research Officer, Kenya; Mr. J. Dickson, Veterinary Research Officer, Federation of Nigeria; Mr. R. G. Erskine, Veterinary Research Officer, Federation of Nigeria; Mr. O. G. H. Karst (Dane), Veterinary Officer, Kaduna, Northern Nigeria; and Mr. K. A. Ross, Veterinary Officer, Northern Rhodesia.

Transfer. Mr. L. A. Stephens, ex V.O., Hong Kong, becomes Veterinary Officer, Kenya.

Some Observations on the Use of Chlorpromazine Hydrochloride in Ruminants

BY

T. D. M. MARTIN, B. SIMPSON, and J. H. REID

Wellington, Shropshire

DURING the past few years reports have been constantly appearing in veterinary literature giving observations on the actions and uses of chlorpromazine hydrochloride in domesticated animals. Whilst much has been noted regarding its canine and equine uses (Schweizer, 1954; Troughton, Gould & Anderson, 1955; Weaver, 1956; Martin & Beck, 1956; Van den Heever, 1956; Owen, 1955; Owen & Neal, 1957), few comments have been published regarding uses in the other farm animals. For that reason, observations on the following cases are considered worth recording.

Dislocation of the Shoulder in Cattle

Unfortunately, we in this practice are not possessed of the manipulatory gift, whereby we can reduce such cases without resorting to mechanical traction. Our technique is the commonly practised one, consisting of casting and anchoring the animal, whilst pulley-blocks are attached to the affected limb, stretching the latter. Attempts at reduction are then made using force (generally in the form of well-directed kicks) on the proximal end of the humerus. Without the use of a general anaesthetic successful reduction was not always accomplished, owing to insufficient muscular relaxation.

Four cases of dislocated shoulder have been encountered in the past 18 months and chlorpromazine hydrochloride was administered intramuscularly in each case prior to casting at the rate of 500 mg. per 1,000 lb. bodyweight approximately.

In each case the animal was cast and anchored with extreme ease within 20 minutes of the injection. There was no attempt on the part of any of the animals to resist the stretching of the affected limb, the muscles being markedly flaccid, whilst 3 of the 4 did not attempt to raise their heads from the ground during the forcing procedure. In all 4 cases successful reduction was accomplished within 10 minutes of the animal being cast. In only 2 of the 4 cases did the animals appear noticeably sedated, the one rising after much persuasion and the other remaining down for approximately 2 hours. This latter animal was heavily in calf and incidentally produced a normal, live, full-term calf 10 days later.

Choke in Cattle

Cartmell (1956) reported one case where injection with chlorpromazine hydrochloride greatly facilitated restraint and passage of the probang. Notes on the 3 cases below are considered worth recording:—

(1) Galloway cow due to calve in 2 weeks, piece of mangold stuck in thoracic oesophagus. Animal quite unmanageable. Ten minutes after intramuscular injection of 500 mg. chlorpromazine hydrochloride the probang was passed and choke relieved with assistance of only one man. Calf unaffected.

(2) Friesian cow. Unable to move obstructing piece of mangold with probang. Injected with 500 mg. chlorpromazine hydrochloride intramuscularly. Probang again tried after 15 minutes and obstruction pushed quite easily into rumen.

(3) Ayrshire cow choking on piece of mangold situated in the upper third of the cervical oesophagus. Animal strenuously resented introduction of hand or probang. Within 15 minutes of intramuscular injection of 500 mg. chlorpromazine hydrochloride the animal sank to its knees and the piece of mangold was easily removed by passing the hand into the oesophagus and withdrawing it.

In these cases, in addition to the obvious advantage of sedation, a distinct impression of oesophageal relaxation was gained.

Caesarean Section in the Ewe

Intramuscular injection of 250 mg. chlorpromazine hydrochloride has been carried out prior to performing caesarean section in 6 ewes (Shropshire and Clun Forest) with the following beneficial results:—

(1) Marked sedation in 10 to 15 minutes (the time taken to prepare site and administer local anaesthetic) as a result of which, by anchoring the animal's fore and hind feet, the operation can be carried out without assistance.

(2) No evidence of discomfort on the part of the ewe on drawing the uterus through the flank incision, as was frequently the case using local anaesthetic *per se*.

No adverse effects were noted in the lambs delivered.

It should be noted that in our hands the intramuscular injections of chlorpromazine hydrochloride produced its tranquillising effect much quicker (10 to 20 minutes) than that recorded by other observers who quote 40 to 60 minutes. Admittedly not all our cases were *visibly sedated* 10 to 20 minutes after injection, but ease of casting, handling, and, in cases of dislocation, degree of muscle relaxation, were markedly apparent after that interval.

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The Victoria Veterinary Benevolent Fund

A meeting of the Council of the Fund was held at No. 10, Red Lion Square, London, W.C.1, on Thursday, November 7th, 1957, when the following members were present:—

Mr. H. W. Dawes (President) in the Chair, Mr. E. Clark, Major J. J. Dunlop, Mrs. D. I. Glover, Mr. G. N. Gould, Mrs. K. G. R. Kelly, Mr. A. A. Lamont, Professor J. McCunn, Professor A. Messervy, Messrs. J. N. Ritchie, Arnold Spicer, H. Sumner, Miss V. Tillemont-Thomason, Captain W. Watt, and Major W. H. Wortley.

In attendance, Mr. R. V. Thatcher, solicitor, and Mr. C. W. Francis, secretary.

Welcome to New Member

The Chairman, on behalf of the members, extended a warm welcome to Mrs. K. G. R. Kelly, M.R.C.V.S., the newly elected President of the Ladies' Guild.

Minutes

The minutes of the previous meeting held on June 25th, having been published in THE VETERINARY RECORD, were taken as read and signed as correct.

Apologies for Absence

The secretary announced apologies for absence from Captain G. Atkinson, Messrs. E. A. Barrett and J. A. Flynn, Dr. R. E. Glover, Mr. L. E. Hughes, Professor R. Lovell, Captain T. M. Mitchell, Professors W. M. Mitchell and L. P. Pugh, Major C. W. Townsend, Miss O. Uvarov, Professor W. L. Weipers, Captain A. Whicher, and Dr. W. R. Wooldridge.

Death of Emeritus Professor G. H. Wooldridge

The secretary, having reported the death of Professor G. H. Wooldridge which took place on August 30th, 1957, the chairman spoke of Professor Wooldridge's great personality and his 33 years' devoted services on the Council, 20 of which were in the capacity of a vice-President. By his departure, the Fund had lost a staunch supporter and the Council a wise counsellor.

The meeting then passed the following resolution, the members standing:—

> That this Council do place on record their deep sorrow at the death of Professor George Henry Wooldridge, F.R.C.V.S., a vice-President of the Fund for 20 years, and their sense of the great loss which the Fund had suffered by his passing, and that the heartfelt condolences of the Council be conveyed to Mrs. E. M. Wooldridge in her great bereavement.

Correspondence

(a) The secretary read a letter from the treasurer of the Ladies' Guild enclosing cheques for £700 for current relief and £400 for the special gift account which the Guild had voted to the Fund at its recent Annual General Meeting. This news was received with great pleasure, and on the motion of the President, *it was unanimously resolved* that a letter be sent to Mrs. R. E. Glover, hon. treasurer, conveying the Council's sincere and grateful thanks for the magnificent sum of £1,100 which the Ladies' Guild had raised during the past year.

(b) The secretary reported that the following nominations to Council had been received: (1) North of Scotland Division, B.V.A.—Mr. W. J. B. Robson, J.P., M.R.C.V.S.; (2) Southern Counties Veterinary Society—Mr. D. H. L. Madden, M.R.C.V.S., in the place of Mr. J. F. D. Tutt, F.R.C.V.S., until their next Annual General Meeting.

Collecting Boxes

An estimate for the supply of collecting boxes from Messrs. Robert Parsons Ltd. was submitted and after considerable discussion *it was resolved* that in the first instance an order be placed for 100 boxes at a cost of £15 2s. 1d., and that these be sent out to members of the profession with a personal letter from the President.

Investments

The treasurer reported that since the previous meeting the sum of £823 9s. 7d. had been received in the donations account and that he had given instructions for this to be invested in the purchase of 3½ per cent. funding stock, 1999/2004. The amount of stock obtained was £1,286 7s. 6d. *It was resolved* that the action of the treasurer be approved.

Accountant's Report

The following report was read and approved, a vote of thanks being accorded to the respective donors:—

Since the previous meeting, the following special subscription, legacy, and donations have been received:—

	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Subscription				
V.V.B.F. Ladies' Guild (for current relief)				700 0 0
Legacy				
Estate of J. W. Rider (plus taxed interest)				504 15 11
Donations				
In Memory of Professor G. H. Wooldridge (in lieu of flowers); 43 contributors			73 3 0	
Miss V. Tillemont-Thomason (*Life Membership*)			10 10 0	
Collecting Boxes				
Ayrshire Veterinary Association		1 5 0		
Baxter, A. J.		5 0 0		
Scottish Branch, B.V.A.		3 8 11		
Welsh Branch, B.V.A. ...	2 16 0			
	1 10 0			
		4 6 0		
N. Rhodesia Veterinary Association		6 7 6		
			20 7 5	

Other Donations						
Anon. (per B.V.A.) ...			6	3		
B.V.A. Golf Championship	4	0	0			
British Timken Show ...	1	1	0			
Elstead Horse Show ...	1	1	0			
Herefordshire Veterinary Club	5	5	0			
Lincs and District Division	5	0	0			
North of Scotland Division	10	0	0			
Serth, G. W.		15	0			
Whicher, A.		10	6			
"	1	1	0			
Windsor Championship Show	10	10	0			
				39	9	9
					143	10 2
Income Tax recovered on annual subscription covenants					63	11 2
					£1,411	17 3

Life Member

It was unanimously resolved that Miss V. Tillemont-Thomason be elected a life member of the Fund.

Special Summer Gifts

The secretary reported that the executive committee, with the help of the hon. treasurer of the Ladies' Guild, had agreed on gifts amounting to £255, being allocated to 32 recipients of the Fund, and that the gifts were sent out on June 28th.

It was resolved that the action of the executive committee in sending out gifts in June, 1957, at a total cost of £255, as detailed in the list submitted to the meeting, be, and is hereby approved.

Garnett Annuity

As requested at the last meeting, the secretary submitted a report on the arrangements which had been made concerning this annuity, which was approved.

Cases

No. 240. Daughter of late member. Aged 61.

It was resolved that the grant paid to this recipient be increased by 5s. per week to meet the increase in her rent.

No. 246. Widow, aged 76. One daughter, aged 40, invalid. Case reviewed. It was agreed that the offer of a member of Council to arrange for a visit to be made to this recipient be accepted, and that on receipt of a report the executive committee be empowered to take such action thereon as it deems desirable.

No. 253. Daughter of late member. Aged 58. Application for temporary assistance to buy necessary fuel. It was agreed that a grant of 10s. per week be made in this case until the end of June, and that the secretary be instructed to write to her on the lines indicated by the meeting.

No. 265. Widow, aged 65. The secretary reported that as requested at the previous meeting he had made enquiries regarding a non-contributory pension being obtainable in her case, and had ascertained that on account of her age she was not eligible.

No. 273. Widow, aged 48. The executive committee reported that as a result of correspondence with Professor P. E. Mullaney and the social welfare officer, Abbeyleix, the pension payable to this recipient under the Widows' Non-contributory Pension Act, had been increased to the full amount of 23s. 6d. per week. Her grant from the Fund was accordingly reduced to £5 per month as from September 1st, 1957.

It was resolved that the action taken by the executive committee be confirmed.

No. 314. Widow, aged 72. In accordance with the wishes of Council made at the last meeting, the secretary reported that he had taken up with the Ministry of Pensions and National Insurance the question of a service dependant's pension being awarded to this widow in respect of her son, who was an observer in the R.A.F. in the last war. His 'plane failed to return to base on June 11th, 1940, and subsequently he was presumed dead.

As a result of the negotiations, a pension of 10s. 6d. per week has been granted in this case.

No. 316. Widow, aged 50. One daughter, aged 19. Submits an account of legal charges in connexion with late husband's estate.

It was resolved that the account of Messrs. Michelmore, Davies & Bellany, amounting to £31 10s., be defrayed by the Fund.

No. 320. M.R.C.V.S., aged 84. Invalid, and confined to bed. The executive committee's action in providing this recipient with wearing apparel was approved, and the Committee was empowered to take such further action as it deemed desirable.

No. 321. F.R.C.V.S., aged 86. Selling out his investments to cover living expenses. The temporary grant of £2 per week made by the executive committee to operate as from July 1st, 1957, was confirmed by the Council, and it was agreed (a) that the offer of a member of Council to visit this member when next he is in that district be accepted, (b) that meanwhile the grant be not disturbed.

No. 322. M.R.C.V.S., aged 68. Unable to engage in practice owing to cataract developing in both eyes. Small income. Case strongly supported by Irish Veterinary Association. The executive committee reported that it had decided to make an allowance of 30s. per week in this case, which operated as from August 1st, and that the applicant should also receive an immediate grant of £10 from the special gift account.

It was resolved that the action of the executive committee be approved and that the secretary be requested to write to the Irish Committee as indicated by the Council.

No. 323. Widow, aged 44. Two daughters, aged 12 and 9. Receiving widow's pension, £169 per annum, and pension from Civil Service. Application supported by the President of the South Wales Division, B.V.A. In view of the age of the children and the present health of the applicant, it was agreed to make a temporary grant of £3 per week for 6 months, when the case be further considered.

No. 324. Widow, aged 64. Total income £250 from N.I. pension and lettings. Outgoings £162 per annum. In poor health.

It was resolved that a grant of £2 per week be made in this case and that it be reviewed in 12 months' time. The secretary was instructed to write to the local veterinary surgeon for his further help in this case.

Wortley Axe Bequest

The following progress report of the Special sub-committee held earlier that day was received and adopted:—

"Your sub-committee have to state that since the presentation of their interim report to Council on February 11th, 1957, correspondence has taken place between Mr. R. V. Thatcher, solicitor to the Fund, and the Charity Commission, on the question of the impracticability of carrying out the terms of this bequest and the Council's proposals for administering the Trust under a new scheme, and in view of the reply of the secretary to the Charity Commission of July 11th, 1957, a copy of which has been made available for members, your sub-committee recommends:—

That since it would be impracticable and financially inadvisable meantime to take any steps to implement the terms of the Trust, that the opportunity be taken, before the maturity of its investments in 1961, to seek Counsel's opinion on:—

(a) the generality of the terms of the Trust and its practicability;

(*Concluded at foot of col. 1, page 21*)

News and Comment

ZOOLOGICAL SOCIETY OF LONDON: OUT-PATIENTS' DEPARTMENT

May we draw readers' attention to a note which appeared on page 154 of the Supplement published on October 19th, announcing the opening of the Zoological Society of London's New Out-Patients' Department? This Department will receive and treat such animals as hamsters, guinea-pigs, monkeys, budgerigars, parrots, and snakes. Under no circumstances will any animal be received unless it is referred to the Department *by a veterinary surgeon* or a veterinary practitioner. Direct access is not available to the general public.

The usual consulting hours are from noon to 1 p.m. from Monday to Friday, and veterinary surgeons and practitioners are asked to telephone if possible before 11 a.m. to make appointments. Owners of the pets will be responsible for the cost of consultation and treatment; domestic animals will not be received.

LEGAL NOTE

In our issue of December 14th we published, briefly, the result of a prosecution brought successfully by the Royal College against an employee of the National Canine Defence League. The details are as follows:—

Charles Henry Dean, of Southbrook Road, Lee, was fined a total of 15 shillings at Lambeth Magistrates' Court on December 10th after pleading guilty to three summonses alleging that he practised veterinary surgery while unlicensed. He was also ordered to pay 25 guineas costs to the Royal College.

Mr. Edward Clarke, for the College, said that the prosecution had been brought by virtue of the 1948 Veterinary Surgeons' Act which dealt with provisions for the teaching of veterinary surgery and restricting the practice of veterinary surgery by unqualified persons. He suggested to the magistrate that the distinction to be drawn between the treatment of animals and human beings by unqualified persons, was that a human being who went to an unqualified doctor did so at his own risk, and knew what he was doing. Mr. Dean was employed by the National Canine Defence League at their clinic at 115, Camberwell Road. Two rooms were used as surgeries, one by a Mr. Chilman who was registered under the Act and so able to practise, the other a basement surgery was where Mr. Dean usually worked. "At no time was he registered as a veterinary surgeon, or licensed in any shape or form," Mr. Clarke said.

Certain treatment cards had been written up by Mr. Dean and showed that in January and February there were at least three occasions on which he had treated dogs as though he were a veterinary surgeon. He had afterwards filled up the register for the treatment of the animals concerned.

"It is perfectly true," said counsel, "that Mr. Dean, during this time, was acting under orders from the National Canine Defence League. What their part in it was matters not, but he was obviously acting under the terms of his employment."

It was not suggested that Mr. Dean had harmed any animals at any time. "But a person who practises veterinary surgery has to do so under the appropriate Act or not at all."

Mr. M. Corley, defending, said it was true that Mr. Dean was employed by the League at a fixed wage which had no relation to the number of animals he saw.

When anyone brought an animal to the clinic a card was made out by a receptionist. Among other things, there appeared on the card the words, "I would like my animal treated. I cannot afford to employ a practitioner." This was to avoid treating animals whose owners could afford to pay. The receptionist obtained an idea of what was essentially wrong with the animal and was supposed to decide whether it was to be seen by Mr. Chilman or Mr. Dean. "There was a system whereby if Mr. Dean saw an animal and thought it required treatment which he was not qualified to give, he was supposed to call in Mr. Chilman to look at the animal himself or tell Mr. Dean what to do. I am instructed that on the majority of occasions that is what happened, but unfortunately there were occasions when it did not."

MR. EDWARD P. A. OFFORD

Professor McCunn writes:—

Edward Offord died on December 9th at his home at Hadley Green, Barnet. He was 72 years of age. He had been confined to his house for some months and although he knew the nature of his illness and its irrevocable end he bore his suffering with remarkable stoicism. This was completely in balance with the way in which he met his troubles and difficulties, of which he had more than most men, throughout his life. He used to say that he was born in the Army for he was the only son of a regular officer, Major E. Offord, and at the time of his birth his father was serving at Portsmouth. He graduated M.R.C.V.S. at the London College in 1909. He served for about two years in Rhodesia, and in 1911 he settled in practice in Barnet. He was keenly interested in sport and he excelled at cricket and football. Offord's accurate fast bowling won many a match for Chipping Barnet. In his later years he took up bowling with great enthusiasm, and he had played this game for his county. He served in the Volunteer and Territorial forces and with the A.V.C. in France during the Great War. He was a special constable, and when World War II broke out he was one of the first in his town to join the local defence force.

He built up a good practice, for he was a capable veterinary surgeon, but it is in virtue of his untiring service in public affairs that he will be remembered best. He was elected to the local Council, and for two periods he served as chairman. He had been chairman of the Joint Hospital Board, of the Barnet Branch of the British Legion, and of the Barnet Council Housing Committee. In the latter rôle he guided his Council very successfully through the difficulties of the post-war era. He served also as Presi-

dent of the Herts. and Beds. Veterinary Society. He was a member of the Road Safety Committee, and he also was very active on the Old People's Welfare Committee and in the affairs of the Barnet Society whose aims are to preserve all that is good of old Barnet and safeguard the development of the district. He entered upon all these public affairs with great zest and energy and if need be he spoke and acted without fear or favour. He gave much time to public work, often to the detriment of his practice, but even in his few leisure hours he pursued his hobbies of gardening, woodwork, and, strange to relate, needlework, with exceptional vigour.

Offord will be remembered in Barnet for many years to come, and the large congregation, which included representatives of many public bodies, which attended Hadley Church on Friday, December 13th, was a manifest token of the esteem which he had earned by his work on behalf of the citizens of Barnet and district.

Dr. Tom Hare writes:—

Edward Pegden Alec Offord, M.R.C.V.S., joins that memorable roll of our colleagues whose work in civic affairs has enhanced the prestige of our profession.

I came to appreciate Ted Offord's many qualities during his two years, 1949-51, as the first President of the Herts. and Beds. Veterinary Society. In promoting and guiding the interests of the society he brought the spontaneity and enthusiasm of the more than average man. He worked very hard, too hard, so his friends thought, for a none too robust body; he drove his car like he drove himself; he liked to be on time for his appointments. His thoughts, like his movements, were quick; he listened attentively to debate and his contributions were weighted with judgment. He made an admirable chairman.

As a member of Barnet Council for 27 years, and twice its chairman, Ted Offord had acquired a wide knowledge of civic administration and politics. His heart was given to all matters affecting the health, comfort, and safety of the public, on which he entertained firm and clearly thought-out views. The other source of experience, which he contributed to veterinary discussions, derived from his work, in Rhodesia followed by his service as Captain, R.A.V.C., during the war of 1914-18 in France. This was the source, or so it seemed to me, of Ted's skill as chairman in directing attention to what was attainable with the least expenditure of time and money. He was adept at diluting his own forthright enthusiasms with draughts of common sense. He could be a devastating critic of a veterinary colleague who advocated "fancy methods," which increased the costs of practice.

He was a many-sided man. He enjoyed sport; a footballer and cricketer in younger days, he later took up bowls and was President of the Barnet Bowling Club. My friendship with him was graced by our mutual enjoyment of art and good craftsmanship. Ted was a connoisseur, particularly of cloisonné, of which he made a choice collection. His appreciation of 18th-century architecture, landscape, and trees made a car-journey with him joyful and interesting; at least when I was not scared at our speed. When he said good-bye to me he had sensed the diagnosis and the inevitable; and he faced it with the pluck which fortified his living.

MR. ALASTAIR McDONALD McCALLUM

Mr. J. E. Wilson writes:—

The grief of his friends at the untimely death of Alastair McDonald McCallum, which took place at 39, Glencoe Street, Glasgow, on December 12th, 1957, will be tempered by the knowledge that it was a release from a long struggle against recurring ill-health. It was soon after qualifying in 1939 (at Glasgow) that the first symptoms appeared, and after an apparent recovery it was typical of the determination and courage he was to show right to the end, that, without disclosing his medical history, he joined the Royal Corps of Signals as a private and served throughout the war. After a short period in practice he joined the Animal Health Division of the Ministry of Agriculture and served in the poultry department of the Veterinary Laboratory at Weybridge until illness again overtook him. After recovering he served at Merklands Wharf, Glasgow, and since July, 1956, at the Ministry's Veterinary Laboratory at Lasswade. Although obviously far from well he never gave up and preserved a wonderful cheerfulness. An attack of influenza took a heavy toll, and the recent spell of cold weather appeared to affect him adversely. He insisted on working a full day, and latterly to conserve his strength travelled to and from work by taxi. He was finally prevailed upon to take leave, and passed away peacefully in his sleep at his home in Glasgow. He was 43 years of age.

He was cremated at the Northern Necropolis, Glasgow, on Monday, December 16th, 1957, and among the mourners present were his colleagues at Merkland, Mr. A. Hamilton, Divisional Veterinary Officer, and Mr. Insch, and Messrs. J. E. Wilson, R. H. Duff, and W. Gordon from Lasswade. The sympathy of all his friends will go to his wife and young son.

NEW MEMBERS OF THE R.C.V.S.

The under-mentioned graduates were admitted to Membership of the Royal College on the dates indicated:—

CARROLL, Denis, Ballybrusita, Loughmone, Templemore, Co. Tipperary, Eire, December 10th, 1957, Dublin; CLARK, James, 99, Granton Road, Edinburgh, 5, December 13th, 1957, Edinburgh; COSTELLO, Eamoun Anthony, Main Street, Carrick-on-Shannon, Co. Leitrim, Eire, December 10th, 1957, Dublin; CULLINANE, John Anthony, 598, Purley Way, Croydon, Surrey, December 14th, 1957, London; DENVIR, Kieran, Ballynarry, Downpatrick, Co. Down, December 10th, 1957, Dublin; DOWNEY, Jeremiah Sylvester, 86, Terenure Road West, Terenure, Dublin, December 10th, 1957, Dublin; FLANAGAN, John Patrick, Baslick, Castlerea, Co. Roscommon, Eire, December 10th, 1957, Dublin; HARTLEY, Ernest Goodwin, Iona, Scratby, Great Yarmouth, Norfolk, December 13th, 1957, Edinburgh; HOBAN, Gerald Patrick O'Donnell, 92, S.C.R., Kilmainham, Dublin, December 10th, 1957, Dublin; HOWSE, John Neville, 11B, Avenue Elmers, Surbiton, Surrey, December 14th, 1957, London; JOHNSTON, John Bateson Hunter, The Hall, Donacloney, Co. Down, December 10th, 1957, Dublin; KELLEHER, John Francis Luke, Ardeevin, Bantry, Co. Cork, December 10th, 1957, Dublin; KING, Michael Bernard, Leenane, Co. Galway, Eire, December 10th, 1957, Dublin; KINGSTON, John Brian,

Walton Lodge, 101, North Road, Parkstone, Dorset, December 13th, 1957, B.V.M.S. (EDIN.); McGOVERN, Philip Gerald, Borin, Swanlinbar, Co. Cavan, Eire, December 10th, 1957, Dublin; McLEAN, Alexander, 19, Blinkbonny Road, Edinburgh, 4, December 13th, 1957, B.V.M.S. (EDIN.); MAIR, John Harvey, 21, Kilnholm Street, Newmilns, Ayrshire, December 13th, 1957, B.V.M.S. (EDIN.); MAY, Desmond Joseph Patrick, Main Street, Ballinrobe, Co. Mayo, Eire, December 10th, 1957, Dublin; MONAHAN, Michael Gerard Bryan, Gloves, Athenry, Co. Galway, Eire, December 10th, 1957, Dublin; OSBORNE, Michael, Tipper House, Naas, Co. Kildare, Eire, December 10th, 1957, Dublin; ROBERTSON, Harald Lomond, 39, Victoria Street, Stromness, Orkney, December 13th, 1957, Edinburgh; RODGER, John Leedham, 8, Abbotsford Crescent, Edinburgh, 10, December 13th, 1957, Edinburgh; TANNER, John Alexander, The Paddock, Grubbins Lane, Speen, Aylesbury, Bucks., December 14th, 1957, London; and WATT, Robert Duncan, Croit-Anna, Druimarbeg, Fort William, Inverness-shire, December 13th, 1957, B.V.M.S. (EDIN.).

THE REGISTER OF VETERINARY SURGEONS

Dr. Holman E. Williams, D.V.M. (TORONTO), Agricultural Dept., St. Clair, Port of Spain, Trinidad, B.W.I., was admitted to the Commonwealth List of the Register of Veterinary Surgeons on December 30th, 1957.

BRIGADIER E. S. W. PEATT

Brigadier Peatt, who died suddenly at his home in Ashford, Kent, on Friday, December 13th, will be remembered by a large number of people as a great horseman. Born at Cootehill, County Cavan, Ireland, he was educated at Kilkenny College, County Dublin, and then at the Veterinary College in Dublin. He completed his studies in 1916 and immediately joined the Royal Army Veterinary Corps and Remount Depot as a commissioned officer. Within three weeks of this commission he was off to Salonika with 500 horses, and his veterinary duties then took him in turn to India, Gibraltar, and Turkey.

On returning to England from Gibraltar in 1936 he was appointed veterinary instructor to the Weedon Equitation School in Northampton. He held this post until the outbreak of the last war when he was posted to the Middle East with the First Cavalry Division, with which he served for 4½ years. Once again he saw service in India as veterinary and remount director, and then returned to England with the rank of brigadier, to serve at Melton Mowbray until his retirement.

Brigadier Peatt was awarded the O.B.E. during the First World War after being mentioned in despatches, and among his notable achievements in the Second World War was his operation in three days on the vocal chords of several hundred mules. This was carried out in Burma under General Wingate's command to enable the patrols to penetrate close to the enemy lines without being betrayed by the braying of the animals.

In 1949 Brigadier Peatt retired to private practice in Ashford. He became secretary of the Ashford Cattle Show, a position he held for 6 years, and in 1952 he went to Helsinki with the British Olympic horse-jumping team. He was an all-round sportsman, and claimed the distinction of having been a Master of Foxhounds in three countries.

To his widow and to his family we extend our deepest sympathy in their loss.

R.C.V.S. OBITUARY

We record with regret the deaths of the following members of the profession:—

McCALLUM, Alastair McDonald, Veterinary Laboratory, Eskgrove, Lasswade, Midlothian. Graduated July 10th, 1939, at the Glasgow Veterinary College. Died December 12th, 1957, aged 43 years.

PEATT, Ernest Snowden Wallace, O.B.E., F.R.C.V.S., The Lilacs, Summer Hill, Ashford, Kent, Brigadier A.V. & R.S. (Retd.). Graduated July 12th, 1916, at the Veterinary College of Ireland, Dublin. Died December 13th, 1957, aged 62 years.

PERSONAL

Births

COOKE.—On October 20th, 1957, to Elizabeth (*née* Linsell), wife of Charles Derek Cooke, M.R.C.V.S., of the Veterinary Department, Oyo, Western Region, Nigeria, a daughter, Bridget Elizabeth.

HUNT.—On December 18th, 1957, to Mary (*née* Cosborne) wife of Graham C. Hunt, B.V.SC., M.R.C.V.S., at Wickham, Hants, a sister for Sarah.

PODD.—On December 16th, 1957, to Pamela (*née* Barnes), wife of Geoffrey Podd, M.R.C.V.S., of "Cortayne," Cromer Road, North Walsham, Norfolk, a son.

Mr. N. C. Collins, M.P.S., general sales manager of the Burroughs Wellcome veterinary division, is so well known in the profession, especially from his regular attendances at the Annual Congress, that his many friends will learn with interest of his appointment to a new post, that of manager of Burroughs Wellcome & Co. (East Africa). Mr. Collins will leave shortly for Nairobi.

COMING EVENTS

January

8th (Wed.). Extraordinary General Meeting of the Midland Counties' Veterinary Association at the Birmingham Medical Institute, 36, Harborne Road, Birmingham, 15, 2.45 p.m.

The Victoria Veterinary Benevolent Fund.—*Concluded.*

(b) the advisability of pressing further the suggestion for varying the application of the funds."

Date of Next Meeting

It was agreed to leave the date of the next meeting in the hands of the executive committee.

Any Other Matters

Non-contributory pensions. It was agreed that a copy of the regulations regarding the revised non-contributory pensions be circulated to the members of Council as soon as they become available.

8th, 9th and 10th (Wed., Thurs. and Fri.). R.C.V.S. Committee and Council Meetings.

15th (Wed.). Meeting of the Warwickshire Veterinary Club at the Regent Hotel, Leamington Spa, 8 p.m.

16th (Thurs.). Meeting of the Western Counties Veterinary Association at the Rougemont Hotel, Exeter, 2.30 p.m.

17th (Fri.). Annual Buffet-Supper Dance of the Scottish Metropolitan Division, V.V.B.F. Ladies' Guild, 8 p.m.

22nd (Wed.). Winter Meeting of the North of Scotland Division in the Northern Hotel, Aberdeen, 2.30 p.m.

24th (Fri.). Annual General Meeting of the Mid-west Division, Berkeley Café, Bristol, 2.15 p.m.

29th (Wed.). Meeting of the B.S.A.A. Midland Region at the Radbrook Hall Hotel, Radbrook Road, Shrewsbury, 2.30 p.m.

February

7th (Fri.). Annual Ball of the Royal (Dick) School of Veterinary Studies in the Assembly Rooms, George Street, Edinburgh, 9 p.m.

B.V.A. COUNCIL AND COMMITTEE MEETINGS

Wednesday, January 22nd, 1958, at No. 7, Mansfield Street, W.1.

10.00 a.m. Veterinary State Medicine Committee.
11.30 a.m. Small-Animals Committee.
2.00 p.m. Farm Livestock Committee.

Thursday, January 23rd, 1958, at No. 7, Mansfield Street, W.1.

10.00 a.m. Parliamentary and Public Relations Committee.
11.30 a.m. Home Appointments Committee.
12.30 p.m. Finance Sub-committee.
2.15 p.m. General Purposes and Finance Committee.

Friday, January 24th, 1958, at the Connaught Rooms, W.C.2.

10.30 a.m. Council Meeting.

FOOT-AND-MOUTH DISEASE

The areas described in the schedules below are declared to be Infected Areas for the purpose of preventing the spread of foot-and-mouth disease:—

IN THE COUNTY OF ESSEX

The Boroughs of Chelmsford and Romford.

The Petty Sessional Divisions of Brentwood, Billericay, Orsett and Romford.

In the Petty Sessional Division of Ongar: The parishes of Stapleford Abbots, Navestock, Kelvedon Hatch, Stondon Massey, High Ongar and Blackmore.

In the Petty Sessional Division of Chelmsford: The parishes of Highwood, Great Baddow, Margaretting, Ingatestone and Fryerning, West Hanningfield, East Hanningfield, Stock and Rettendon and those parts of the parishes of South Hanningfield and Runwell as lie within the Petty Sessional Division.

In the Petty Sessional Division of Rochford: The parishes of Rawreth, Rayleigh, Thundersley, South Benfleet, Hadleigh and Canvey Island.

The Borough of Dagenham.

In the Petty Sessional Division of Ongar: The parishes of Stapleford Tawney, Stanford Rivers, Greensted and Chipping Ongar.

In the Petty Sessional Division of Epping: The parishes of Theydon Mount, Lambourne and Chigwell and so much of the parishes of Loughton, Theydon Bois, Theydon Garnon and Epping as lies to the south and east of the railway from Woodford Green to Chipping Ongar excluding the said railway.

IN THE COUNTY OF DENBIGH

The Borough of Wrexham.

In the Petty Sessional Division of Ruthin: The parish of Llandegla.

In the Petty Sessional Division of Bromfield: The parishes of Llay, Gresford, Bieston, Abenbury, Holt, Isycoed, Sesswick, Broughton, Marchwiel, Erthig, Esclusham Below, Esclusham Above, Bersham, Minera, Brymbo and Gwersyllt.

In the Petty Sessional Division of Ruabon: The parishes of Rhosllanerchrugog, Pen-y-cae, Cefn, Ruabon and Erbistock.

In the Petty Sessional Division of Llangollen: The parishes of Bryneglwys, Llantysilio, Llangollen Urban, Llangollen Rural and Chirk.

In the Petty Sessional Division of Ceiriog: The parishes of Llansantffraid Glynceiriog, Glyntraiam, Llangadwaladr and Llansilin.

IN THE COUNTY OF FLINT

In the Petty Sessional Division of Hope: The parishes of Treuddyn, Llanfynydd and Marford and Hoseley.

In the Petty Sessional Division of Maelor: The parishes of Worthenbury, Bangor, Overton, Halghton and Penley.

In the Petty Sessional Division of Maelor: The parish of Willington.

IN THE COUNTY OF SALOP

The Borough of Oswestry.

In the Petty Sessional Division of Oswestry: The parishes of Welshampton, Ellesmere Urban, Ellesmere Rural, St. Martin's, Weston Rhyn, Whittington, Selattyn, Oswestry Rural and Sychtyn.

IN THE COUNTY OF MERIONETH

In the Petty Sessional Division of Edeyrnion: That part of the parish of Corwen as lies to the east and north of the road running from Cynwyd *via* Bryn Saint and Ty'n-y-cefn to Gwyddelwern, excluding the said road.

IN THE COUNTY OF CHESTER

The Boroughs of Bebington and Ellesmere Port.

In the Petty Sessional Division of Wirral: The parishes of Hoylake-cum-West Kirby, Grange, Caldy, Frankby, Greasby, Irby, Thurstaston, Pensby, Heswall-cum-Oldfield, Barnston, Gayton, Neston-cum-Parkgate and Willaston.

In the Petty Sessional Division of Chester Castle: The parishes of Ledsham, Capenhurst, Lea-by-Backford, Backford, Chorlton-by-Backford, Croughton, Little Stanney, Stoke, Thornton-le-Moors, Elton and Hapsford.

In the Petty Sessional Division of Eddisbury: The parishes of Frodsham and Helsby.

In the Petty Sessional Division of Runcorn: The parishes of Runcorn, Halton and Sutton.

In the Petty Sessional Division of Altrincham: The parishes of Carrington, Partington and Warburton.

In the Petty Sessional Division of Broxton: The parishes of Farndon, Crewe, Caldecott, Grafton, Church Shocklach, Horton, Shocklach Oviatt, Chorlton, Cuddington, Newton by Malpas, Threapwood and Oldcastle.

IN THE COUNTY OF DENBIGH

In the Petty Sessional Division of Bromfield: The parish of Allington.

IN THE COUNTY OF LANCASHIRE

So much of the City and County Borough of Salford as lies to the north of the railway from Astley *via* Patricroft, Eccles and Cross Lane to Manchester (Victoria) excluding the said railway.

The City and County Borough of Liverpool.

The County Boroughs of Bootle, St. Helens, Birkenhead, Wallasey, Bolton, Bury and Rochdale.

IN THE COUNTY OF LANCASTER

The Boroughs of Heywood, Darwen Leigh, Eccles, Farnworth, Swinton and Pendlebury, Prestwich, Radcliffe, Widnes and Crosby.

The Petty Sessional Divisions of Bolton, Bury, Liverpool County, St. Helens, Prescot, Rochdale and Widnes.

In the Petty Sessional Division of Southport: The parish of Altcar.

In the Petty Sessional Division of Ormskirk: The parishes of Lydiate, Aughton, Bickerstaffe, Maghull, Melling and Simonswood.

In the Petty Sessional Division of Darwen: The parish of Tockholes.

In the Petty Sessional Division of Wigan: The parishes of Haigh, Aspull and Hindley.

In the Petty Sessional Division of Leigh: The parishes of Atherton and Tyldesley and that part of the parish of Golborne that lies within the Petty Sessional Division.

In the Petty Sessional Division of Manchester: The parishes of Worsley, Irlam, Flixton, Urmston and Davyhulme.

In the Petty Sessional Division of Leyland Hundred: The parish of Anderton.

In the Petty Sessional Division of Warrington: The parishes of Croft and Rixton-with-Glazebrook.

IN THE COUNTY OF NORFOLK

The City and County Borough of Norwich (except that part of the bed of the River Yare as lies to the east of the parish of Thorpe St. Andrew).

The Petty Sessional Divisions of Eynsford and South Erpingham.

In the Petty Sessional Division of Holt: The parishes of Briston, Melton Constable and Plumstead.

In the Petty Sessional Division of North Erpingham: The parishes of Matlask and Suffield.

In the Petty Sessional Division of Tunstead and Happing: The parishes of Tunstead, Sloley, Westwick and Felmingham and so much of the parish of North Walsham as lies to the west of the main road running from Antingham *via* North Walsham to Smallburgh excluding the said road.

In the Petty Sessional Division of Blofield and Walsham: The parish of Thorpe St. Andrew.

In the Petty Sessional Division of Taverham: The parishes of Felthorpe, Horsford, Hainford, Frettenham, Horstead with Stanninghall, Wroxham, Salhouse, Crostwick, Spixworth, Horsham St. Faith and Newton St. Faith, Catton, Sprowston, Rackheath, Beeston St. Andrew, Helleston, Drayton, Attlebridge, Taverham, Costessey, Bawburgh, Colney, Cringleford, Keswick, Little Melton, Great Melton, Trowse with Newton and Hethersett.

In the Petty Sessional Division of Mitford and Launditch: The parishes of Hoe, Swanton Morley, East Dereham, North Tuddenham, Hockering, East Tuddenham, Mattishall and Yaxham and so much of the parish of Garvestone as lies to the north and east of the railway running from East Dereham to Wymondham excluding the said railway.

In the Petty Sessional Division of Forehoe: The parishes of Honingham, Easton, Marlingford, Barford, Barnham Broom, Runhall, Kimberley and Wramplingham and so much of the parish of Wymondham as lies to the north of the road running from Crownthorpe *via* Northfield and Milebridge Farm to Cringleford including the said road.

IN THE COUNTY OF DORSET

The Borough of Shaftesbury.

In the Petty Sessional Division of Shaftesbury: The parishes of Bourton, Silton, Gillingham, Buckhorn Weston, Kington Magna, West Stour, East Stour and Motcombe.

IN THE COUNTY OF SOMERSET

In the Petty Sessional Division of Wincanton: The parish of Henstridge.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Ches. Noonsun Farm, Great Warford, Knutsford (Dec. 27).

Co. Durham. Travellers Rest Farm, Marwood, Barnard Castle (Dec. 18).

Derbys. Hill Carr Farm, South Darley, Matlock (Dec. 18); Cubley Lodge, Cubley (Dec. 20).

Hereford. Whitwick Manor, Yarkhill (Dec. 23).

Kirkcudbright. Haklet Leathes Farm, Castle Douglas (Dec. 21).

Leics. Bumblebee Farm, Sharnford, Hinckley (Dec. 23).

Renfrew. Lawmarnock Farm, Kilbarchan (Dec. 16).

Somerset. Park Farm, Lullington, Frome (Dec. 16).

Atrophic Rhinitis

Salop. Lawley Farm, Lawley, Wellington (Dec. 16).

Fowl Pest

Cambs. White Cross Road, Wilburton, Ely; Westfield House, Wisbech Road, March (Dec. 17); 23, High Street, Waterbeach (Dec. 18); 10, George Street, Willingham (Dec. 20); Marshall House, Wisbech Road, March (Dec. 27); Westry Bungalow, Wisbech Road, March; 4, Earith Road, Willingham; West Fen, Willingham; 29, Fen End, Willingham (Dec. 28).

Herts. Newlands, Bedmond Road, Bedmond, Watford (Dec. 16); Valley View, Bedmond Road, Watford (Dec. 19); Shepreth Mill, Shepreth, Royston (Dec. 22).

Lancs. Spout House Farm, Washington Lane, Buxton, Chorley; The Green, Ratten Lane, Hutton, Preston; Windmill Farm, Treales, Kirkham, Preston (Dec. 16); Pauls Farm, 382, Dunkirk Lane, Leyland, Preston; 2, Cut Lane, Croston, Preston (Dec. 17); 40 Smallholding, Knuzden, Blackburn (Dec. 18); 4, Dow Bridge, Kirkham, Preston (Dec. 19); Dowbridge Farm, Newton, Kirkham, Preston; Hillock Farm, Croston, Preston; The Cottage, 208, Moor Road, Croston, Preston; 1, Woodstock Estate, Lostock Hall, Preston; Finches Farm, North Road, Bretherton, Preston; Middle Grange Farm, Grange Lane, Hutton, Preston; Bond Villa, North Road, Bretherton, Preston (Dec. 20); 56, Finch Lane, Appley Bridge, Wigan; Walton Hall Farm, Walton-le-Dale, Preston (Dec. 21); 71, Chapel Road, Hesketh Bank, Preston (Dec. 22); Quarry Field, Cross Farm, Preston Street, Kirkham, Preston; Hazelwood, North Road, Bretherton, Preston; Calderbank House Farm, Dunkirk Lane, Midgehall, Leyland, Preston (Dec. 23); Moor Farm Cottage, Tarleton, Preston; Poultry Farm, By Pass Road, Kirkham, Preston; 28 Smallholding, Knuzden, Blackburn; 30 Smallholding, Knuzden, Blackburn; 26 Smallholding, Knuzden, Blackburn (Dec. 24); Coronation Villa, Moor House Lane, Newton, Lever House Farm, Leyland, Preston; New Moss Hall Farm, Moss Lane, Little Hoole, Preston (Dec. 26); Birch Green Farm, Carrhouse, Upholland, Wigan (Dec. 27); Oakdene, Fleetwood Road, Greenhalgh, Kirkham, Preston; 193, Moor Road, Creston, Preston; The Bungalow, Slag Lane, Lower Penwortham, Preston; Jenkinsons Farm, Sollom, Tarleton, Preston (Dec. 28).

Norfolk. Windybrae, Paper Street, Yaxham, East Dereham (Dec. 17); Quaker House, Mattishall, Dereham (Dec. 18); The Hall, Shouldham, Kings Lynn (Dec. 20); Galley Moor Farm, East Dereham; The Grove, Hainford, Norwich; Hill House, Yaxham, East Dereham (Dec. 21); Kensington House, Mattishall, Dereham; Kensington Hall, Mattishall, Dereham (Dec. 26).

Notts. The Gables, Sutton-cum-Granby; Hollow Hill Farm, Kinoulton; Highfield Farm, Sutton-cum-Granby (Dec. 16); The Poplars, Sutton-cum-Granby (Dec. 17); Elm Farm, Kinoulton; The Cottage, Sutton-cum-Granby (Dec. 28).

Suffolk. Martins Cottage, Wattisfield, Diss (Dec. 24).

Yorks. The Bungalow, Sessay, Thirsk (Dec. 18); Manor Farm, Sessay, Thirsk (Dec. 23); Rose Villa, Sessay, Thirsk; Court House, Sproxton, Helmsley; Coldharbour, Dalton, Thirsk; Rooper Hill, Sessay, Thirsk (Dec. 24).

Swine Fever

Anglesey. Nantanog Farm, Llanerchymedd (Dec. 23).

Berks. The Bungalow, Ashmore Green, Thatcham, Newbury (Dec. 18).

Ches. Mouldsworth Hall Farm, Mouldsworth (Dec. 20).

Derby. Piggeries, Home Farm, Osmaston, Ashbourne (Dec. 23).

Devon. Piggeries at Screech Owl Field, Clayhiden Road, Hemyock, Cullompton (Dec. 23).
Gloucs. Field House Farm, Brook Road, Warmley, Bristol (Dec. 18).
Hants. Kinson Lodge, Magna Road, Bearwood, Bournemouth; Ladbrook Villa, Bockhampton, Christchurch (Dec. 23).
Herts. Dog Kennel Farm, Lilley, Luton (Dec. 18).
Hunts. Manor House, Alconbury (Dec. 18); Saltwell Lodge, Leighton (Dec. 27).
Kent. Goodmans Farm, Stansted, Sevenoaks (Dec. 16).
Lanarks. Shawhead Farm, Coatbridge (Dec. 24).
Leics. Church Farm, Willoughby Waterless (Dec. 16); P.O.W. Camp, Harborough Road, East Farndon, Market Harborough (Dec. 17); 24, King Street, Whetstone (Dec. 24).
Middx. Moor Lane Allotments, Harmondsworth (Dec. 17); Frays Farm, Harefield Road, Uxbridge (Dec. 23).
Norfolk. Broadlands, Acle Bridge, Fleggburgh, Great Yarmouth (Dec. 20).
Surrey. Amesbury, Fellow Green, West End, Woking; Home Farm, Grayshott Hall, Grayshott, Hindhead (Dec. 20).
Warwicks. Ullesthorpe Lodge, Ullesthorpe, Rugby (Dec. 24).
Worcs. Blenheim Farm, Honeybourne, Evesham (Dec. 17).
Yorks. Forge House, Beal, Goole (Dec. 18); Grovehill Farm, Filey (Dec. 23).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Foot-and-Mouth Disease: A Warning

Sir,—As one who has recently been involved in a serious outbreak of foot-and-mouth disease, I would like to warn all practitioners to exercise the utmost vigilance in cases of lameness in pigs (more so if these are "swill fed"), and in cattle exhibiting dental discomfort with any degree of salivation, however slight, particularly if they have been kept in the vicinity of "swill-fed" pigs.

I would urge any veterinary surgeon who encounters a case at all suggestive of foot-and-mouth disease to seek an immediate consultation with the Ministry's veterinary officer, and, if possible, to remain on the farm until he arrives. Other premises should not be visited until a diagnosis has been made. Ordinary measures of hygiene and of disinfection, such as can be carried out on the spot, are inadequate if one has become contaminated with the virus; much more rigid precautions are necessary.

For obvious reasons I must remain anonymous.

Yours faithfully,
GENERAL PRACTITIONER.

December 15th, 1957.

Use of Synthetic Oestrogens for Fattening Cattle

Sir,—In case any reader has not had first-hand experience of the subject may I be allowed to comment on the following statement made by Mr. David D. Ogilvie in his letter published under the above heading in THE VETERINARY RECORD, Vol. 69, No. 51, of December 21st: "There is ample evidence that these products have very desirable effects both on quality of end-product and cost of production." About cost of production there can be no argument, but on quality of end-product under our conditions there has been, and will be, plenty.

In the relatively few carcases of treated animals I have examined in some detail a significant number, in one lot 50 per cent., have shown such marked changes in conformation and colour of flesh that rejection under the Fatstock Guarantee Payment Scheme for the showing of "bullish characteristics" might well have been expected. It may be that in some parts of the world such "stag" meat would be valued and Mr. Ogilvie's statement justified, but officially, at least, we have not reached that stage in Britain. These undesirable manifestations have been passed over rather lightly as side-effects but they appear to be merely an extension of the desired increase in flesh and reduction in fat obtained in successfully treated animals.

The claim that they can be prevented by careful dosage would be more logical if the amount of oestrogen taken in the food were known or could be controlled. That a certain amount of concern over the whole question has been aroused in various parts of the country is not surprising as it is doubtful if the technique of the Feeding Trial with its emphasis on live-weight gain was cricital enough for the assessment of the action of synthetic oestrogens particularly when unlooked for changes occurred.

Yours faithfully,
JOHN C. GRANT.

Department of Agriculture,
Marischal College,
Aberdeen.

December 24th, 1957.

Publicity

Sir,—Much has been written in your columns about the lack of publicity given to our profession's achievements, in the press and elsewhere. I wish to draw your attention to an article entitled "Foot-and-Mouth: A Look Ahead" by a staff reporter which appeared in *The Field* of June 27th, 1957.

In this article there was not the slightest indication that the veterinary profession was in any way connected with the work at Pirbright. Surely, Sir, it must be someone's duty to see that this sort of thing does not happen. Modesty is no virtue when the whole profession suffers.

Yours faithfully,
JOHN BIRKETT,
Director of Veterinary Services

The Veterinary Department,
Teko,
Sierra Leone,

December 4th, 1957.

Tranquillisers

Sir,—I should like to add my comments to the recent correspondence regarding tranquillisers in small-animal practice. In my experience with the new tranquilliser 10-(N-methyl-3-piperidyl-methyl)-phenothiazine, I have found the drug to be of great value pre- and post-operatively.

Pre-operatively, this drug has been useful in reduc-

ing nervousness and fear in the animal, and reduces the amount of anaesthetic required.

Although Pacatal is not indicated for cats, I have found it of use in spaying, using half to a whole 25-mg. tablet half an hour before anaesthetising with ether. It allows a slower and quieter recovery period, and the cat rarely interferes with its stitches. Post-operatively, it has minimised interference with wounds, and given daily has permitted dressing of such painful conditions as aural resection and amputations by the owners.

Yours faithfully,
D. K. TRAYNOR.

220, East Lane,
Wembley,
Middlesex.

December 18th, 1957.

The " Rights " of Animals

Sir,—Before the lengthy correspondence on this subject is finished, allow me to endorse the views put forward in Mr. W. H. McFerran's letter of December 6th. With the exception of Dr. Tom Hare's letter of October 20th, the bewildering statements made in other letters seem to make confusion more confounded, so it is refreshing to read Mr. McFerran's theory based on the facts of the Christian faith, the veracity of which faith has stood the test of centuries and will stand to the end of time.

Yours faithfully,
A. C. URQUHART.

" Newlyn,"
Killearnan,
Ross-shire.

December 18th, 1957.

Sir,—I hope that this letter of mine will reach you before the correspondence on the above subject is closed. As regards its lateness, I can only offer in apology the facts that I am in the Antipodes, and that I had hoped abler pens than mine would have supported Mr. Smythe.

It appears to me that the main fallacy of most of your correspondents is in seeking only in the Christian religion to ascertain if animals have rights. The world's largest religion, Buddhism, with its equivalent of the Christian publicans and sinners as wine-bibbers and butchers, would surely be the one in which to seek.

Even if one must quote a Christian sage, why Aquinas? Why not Eckhart? " Any flea as it is in God is nobler than the highest of angels in himself." Which surely means that the animal kingdom is closer to God than man, other than a theocentric saint, of which in any given generation there can be very few, and of course young children before they have become " . . . corrupted and made to learn the dirty devices of the world."

One branch of the Buddha's eightfold path for those seeking enlightenment is right livelihood which prohibits, to quote Aldous Huxley: " . . . not merely the criminal professions, such as brothel-keeping, forgery, racketeering, and the like . . . " but also " . . . the manufacture of arms, the concoction of intoxicating liquors, and the wholesale purveying of butcher's meat . . . " these latter three occupations, in many Buddhist societies were " . . . were not as in contemporary Christianity rewarded by wealth, peerages, and political influence; they were deplored as businesses which, it was thought, made it particularly difficult for their practitioners and for other members of the communities in which they were practised to achieve enlightenment and liberation."

In fact, as I see it, the only satisfactory philosophy of life is a doctrine of divinity dwelling in all living creatures, in which case we have no more right to abuse animals than we have to abuse our own children.

Admittedly a vegetarian world with all that it implies would be a queer place; but it could not be any queerer than it is at present, and certainly would be a much safer place in which to live.

Yours faithfully,
R. SYNGE HARBORD.

33, Beaver Street,
East Malvern, S.E.5,
Victoria,
Australia.

December 18th, 1957.

Muscular Relaxants

Sir,—Succinylcholine derivatives have been in use for several years as a means of obtaining muscular relaxation under general anaesthesia. Their use has been limited by the degree of respiratory depression which they cause. It is now reported that another succinylcholine derivative is soon to be marketed in this country for intravenous use in the horse. This is claimed to give complete immobilisation—without marked respiratory depression—for operations *under local anaesthesia.* The drug has no anaesthetic effect whatsoever. I should like to add my protest to that which Mr. Hall (Hall, 1955) made when the use of the drug was reported from America.

There would appear to be three overwhelming reasons against adopting this drug for veterinary use:—

1. Pain of administration. The relaxation is preceded by extremely painful muscular spasm. There may also be broncho-spasm.

2. State of panic. This is due to the pain caused by administration allied to the extreme anxiety at losing all voluntary movement (often overwhelming even in human subjects who fully understand what is being done).

3. Inability to assess depth of anaesthesia. The most conscientious operator, deprived of any means ot assessing the effectiveness or otherwise of his anaesthesia, could unwittingly inflict extreme pain on a helpless subject. This (of course) applies equally to local and general anaesthesia.

Surely this drug is one which, in the interests of

the much-discussed "rights of animals," the profession could well do without?

Yours faithfully,
P. M. KEEN.

67, Grenfell Road,
Maidenhead,
Berks.

December 15th, 1957.

Reference

HALL, L. W. (1955). *Vet. Rec.* **67**. 191.

"A Suitable Legend"

Sir,—As a good Editor should, you force the innocent to take issue because of comments made in your correspondence columns. In his letter of December 14th, Mr. McGuinness courteously refrained from mentioning the "well-known firm of druggists" involved in offering antiseptic dusting powder in 6-dozen lots, provided with the veterinary surgeon's name and address printed together with a "suitable legend."

Being the company involved, we regret that Mr. McGuinness has the erroneous impression that this is an innovation, possibly starting a procession of non-British sales drives. The practice of providing two of our very low-priced product packs with special labels is now over 15 years old and was designed, with success, in response to requests by veterinary surgeons.

The special labels mean that only the nature of the use of the product is outlined instead of the trade name; for example: "The parasitic dusting powder" would be followed by the "legend": "Apply into the coat all over the body. Repeat in 7 to 10 days." Or, as Mr. McGuinness specifically mentioned: "An antiseptic powder" followed by the suitable "legend." This data is succeeded by the name and address of the practice.

We hope this information clears up any misunderstanding concerning the possibility of new "push" techniques being involved.

Yours faithfully,
S. HOOKHAM,
Veterinary Division.

Bayer Products Ltd.,
Neville House,
Eden Street,
Kingston-on-Thames,
Surrey.

December 24th, 1957.

The Space Dog

Sir,—Mr. Hamilton Kirk should keep up with the times. It is generally agreed that whichever nation can establish a manned satellite first will have achieved military supremacy, being thus able to launch attacks on any part of the world.

The dog itself, we were told, was accustomed gradually to all conditions likely to be encountered within the satellite so that no new or terrifying experience was expected to arise. Its food supply was given automatically at regular intervals, with a lethal dose of barbiturate contained in the final meal one week or so after launching.

As considerable anti-Russian propaganda was obtained from the presence of the dog in the satellite it is possible that the British public was not fully informed of the animal's ultimate end.

Let us keep in mind the thousands of animals which have been literally seared to death both fast and slow by the effects of experimental atomic reactions conducted by the Western nations, not forgetting the man who bludgeons his dog and hurls it into a deep well to die a lingering death. I believe the penalty for the latter offence has now risen in England to the payment of a fifty-shilling fine.

No, Mr. Kirk, you don't have to go to Russia to find barbaric behaviour to dumb creatures.

Yours faithfully,
R. E. EARNSHAW.

Penticton Veterinary Hospital,
Penticton, B.C.,
Canada.

December 22nd, 1957.

Box Numbers

Sir,—I note, with regret, the recent great increase in the use of box numbers by those desirous of obtaining the services of assistants or locums. I feel that this method, with its implication of a desire for secrecy, may not always be in the best interests of advertisers: there must be others on the labour market who, like myself, have given up writing to box numbers owing to the extreme rarity of receiving the courtesy of a reply to one's letter.

Yours faithfully,
PAUL CROSFIELD.

Little Tew,
Oxford.

December 28th, 1957.

Availability of Literature

Sir,—I should like to take up a point from Col. Short's letter regarding the availability of the *Australian Veterinary Journal* to members in the U.K. Admittedly copies arrive a little late in this country, and ours, when they do come, circulate among a number of regular readers; but the difficulty of access is not nearly as great as Col. Short's letter might seem to suggest. Arrangements can always be made for an urgent request to be dealt with, even if our own copies are out on loan, either by the kindness of other libraries or from our own stock of reprints. We shall be happy to supply any requests for this material.

Yours faithfully,
M. M. RAYMER,
Librarian.

Royal College of Veterinary Surgeons,
9 and 10, Red Lion Square,
London, W.C.1.

December 30th, 1957.